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## (54) Imidazopyridine compounds and processes for preparation thereof.

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## Description

The present invention relates to novel imidazopyridine compounds and pharmaceutically acceptable salt thereof. More particularly, it relates to novel imidazopyridine compounds and pharmaceutically acceptable salts thereof which have antiulcerative activity, to processes for preparation thereof, to pharmaceutical composition comprising the same, and to method of using the same therapeutically in the treatment of ulcer in human being or animals.

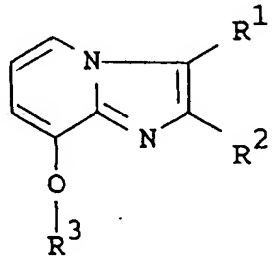
Accordingly, one object of the present invention is to provide novel imidazopyridine compounds and pharmaceutically acceptable salt thereof, which are useful as a medicine for ulcer.

Another object of the present invention is to provide processes for preparation of said imidazopyridine compounds and pharmaceutically acceptable salts thereof.

A further object of the present invention is to provide pharmaceutical composition comprising, as an active ingredient, said imidazopyridine compounds or its pharmaceutically acceptable salt.

Still further object of the present invention is to provide method of using said imidazopyridine compounds or its pharmaceutically acceptable salt in the treatment of ulcer in human being or animal.

The imidazopyridine compounds of the present invention are novel and can be represented by the formula (I) :



(I)

wherein

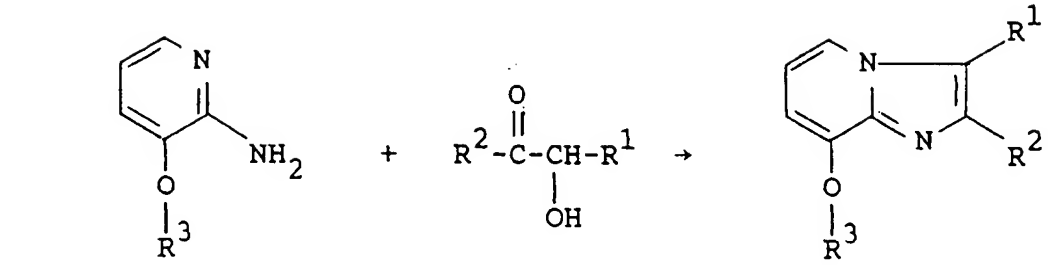
$R^1$ is $C_2$-$C_6$ alkynyl,

$R^2$ is $C_1$-$C_6$ alkyl, and

$R^3$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from $C_1$-$C_6$ alkanoylamino, $C_1$-$C_6$ alkanesulfonylamino, $C_1$-$C_6$ alkoxycarbonylamino, isonicotinamido, ureido, ureido having $C_1$-$C_6$ alkyl, $C_1$-$C_6$ alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, phenyl($C_1$-$C_6$)-alkoxycarbonylamino, 3-benzoylthioureido, thioureido, $C_1$-$C_6$ alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$ alkanoylcarbonylamino $C_1$-$C_6$ alkoxycarbonylcarbonylamino, sulfamido, $C_1$-$C_6$ alkanoylamino having hydroxy and amino($C_1$-$C_6$)alkanoylamino.

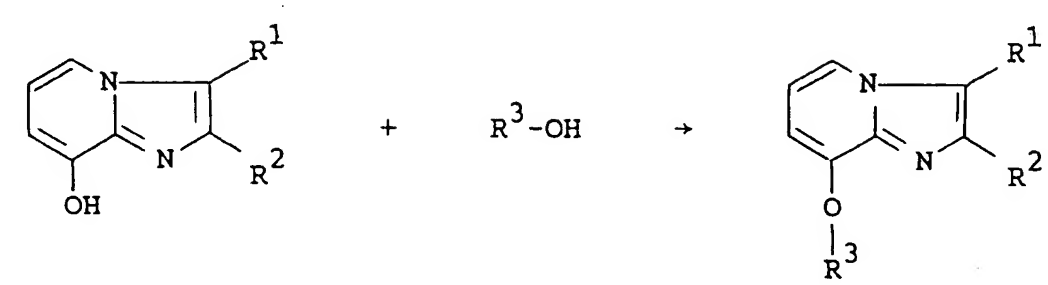
According to the present invention, the object compounds(I) can be prepared by the following processes.

Process 1



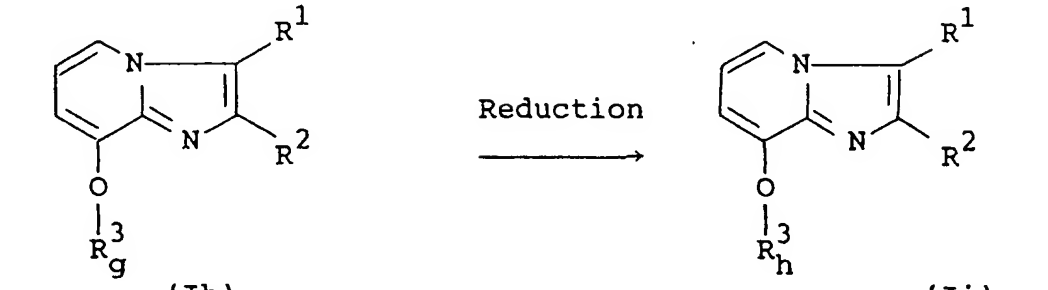
(II) or a salt thereof + (III) or its reactive derivative at the hydroxy group → (I) or a salt thereof

Process 2



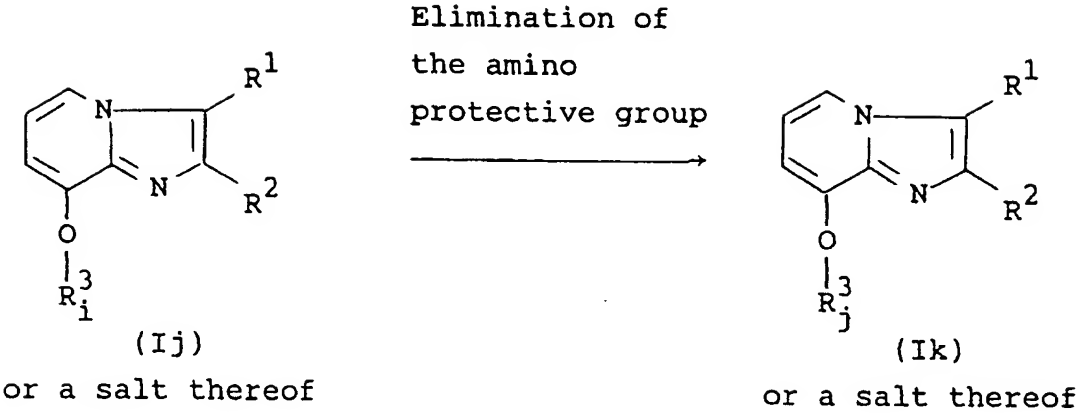
(VI) or a salt thereof + (VII) or its reactive derivative at the hydroxy group → (I) or a salt thereof

Process 3



(Ih) or a salt thereof → Reduction → (Ii) or a salt thereof

Process 4




(Ij)

or a salt thereof

(Ik)

or a salt thereof

wherein

| | |
|---|---|
| $R^1$, $R^2$ and $R^3$ | are each as defined above, |
| $R^3_g$ | is benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanoylcarbonylamino, |
| $R^3_h$ | is benzyl substituted by $C_1$-$C_6$ alkyl and α-hydroxy($C_1$-$C_6$)alkanoylamino, |
| $R^3_i$ | is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from $C_1$-$C_6$ alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino and 3-benzoylthioureido, and |
| $R^3_j$ | is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from amino($C_1$-$C_6$)alkanoylamino and thioureido. |

As to the starting compounds (II), (III), (VI) and (VII), some of them are novel and can be prepared by the procedures disclosed in the following Preparations 1 to 17.

Suitable salts of the object compounds (I) are conventional non-toxic, pharmaceutically acceptable salts and may include a salt with a base or an acid addition salt such as a salt with an inorganic base, for example, an alkali metal salt (e.g. sodium salt, potassium salt, cesium salt, etc.), an alkaline earth metal salt (e.g. calcium salt, magnesium salt, etc.), an ammonium salt; a salt with an organic base, for example, an organic amine salt (e.g. triethylamine salt, pyridine salt, picoline salt, ethanolamine salt, triethanolamine salt, dicyclohexylamine salt, N,N'-dibenzylethylenediamine salt, etc.), etc.:
an inorganic acid addition salt (e.g. hydrochloride, hydrobromide, sulfate, phosphate, etc.); an organic carboxylic or sulfonic acid addition salt (e.g. formate, acetate, trifluoroacetate, maleate, tartrate, methanesulfonate, benzenesulfonate, p-toluenesulfonate, etc.); a salt with a basic or acidic amino acid (e.g. arginine, aspartic acid, glutamic acid, etc.); and the like.

In the above and subsequent descriptions of the present specification, suitable examples and illustrations of the various definitions which the present invention include within the scope thereof are explained in detail as follows.

Suitable "$C_2$-$C_6$ alkynyl" group and "$C_2$-$C_6$ alkynyl" moieties may be the ones having 2 to 6 carbon atoms and may include ethynyl, 1(or 2)-propynyl, 1(or 2 or 3)-butynyl, 1(or 2 or 3 or 4)-pentynyl, 1(or 2 or 3 or 4 or 5)-hexynyl, and the like.

Suitable "$C_1$-$C_6$ alkyl" group and "$C_1$-$C_6$ alkyl" moieties may be the ones having 1 to 6 carbon atom(s) and may include methyl, ethyl, propyl, isopropyl, n-butyl, t-butyl, pentyl, hexyl and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanoylamino" may include benzyl substituted by methyl and $C_1$-$C_6$ alkanoylamino (e.g. 6-formamido-2-methylbenzyl, 3-acetamido-2-methylbenzyl, 5-acetamido-2-methylbenzyl, 2-acetamido-6-methylbenzyl, 2-methyl-6-propionamidobenzyl, 2-acetamido-4-methylbenzyl, 2-butyramido-6-methylbenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanesulfonylamino" may include benzyl substituted by methyl and $C_1$-$C_6$ alkanesulfonylamino (e.g. 2-methanesulfonylamino-6-methylbenzyl, etc.) and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkoxycarbonylamino" may include benzyl substituted by methyl and $C_1$-$C_6$ alkoxycarbonylamino (e.g. 2-methoxycarbonylamino-6-methylbenzyl, 2-ethoxycarbonylamino-6-methylbenzyl, 2-methyl-6-i-propoxycarbonylaminobenzyl, 2-t-butoxycarbonylamino-6-methylbenzyl, etc.) and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanoylcarbonylamino" may include benzyl substituted by methyl and $C_1$-$C_6$ alkanoylcarbonylamino (e.g. 2-methyl-6-pyruvamidobenzyl, etc.), and the

like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and α-hydroxy($C_1$-$C_6$)alkanoylamino" may include benzyl substituted by methyl and α-hydroxy($C_1$-$C_6$)alkanoylamino (e.g. 2-lactamido-6-methylbenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino" may include benzyl substituted by methyl and $C_1$-$C_6$ alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino (e.g. 2-t-butoxycarbonylaminoacetamido-6-methylbenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and amino($C_1$-$C_6$)alkanoylamino" may include benzyl substituted by methyl and amino($C_1$-$C_6$)alkanoylamino (e.g. 2-aminoacetamido-6-methylbenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and 3-benzoylthioureido" may include benzyl substituted by methyl and 3-benzoylthioureido (e.g. 2-(3-benzoylthioureido)-6-methylbenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and thioureido" may include benzyl substituted by methyl and thioureido (e.g. 2-methyl-6-thioureidobenzyl, etc.) and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and isonicotinamido" may include benzyl substituted by methyl and isonicotinamido (e.g. 2-isonicotinamido-6-methylbenzyl, etc.) and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and ureido" may include benzyl substituted by methyl and ureido (e.g. 2-methyl-6-ureidobenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and ureido having $C_1$-$C_6$ alkyl" may include benzyl substituted by methyl and ureido having $C_1$-$C_6$ alkyl (e.g. 6-methyl-2-(3-methylureido)benzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and phenyl($C_1$-$C_6$)alkoxycarbonylamino" may include benzyl substituted by methyl and phenyl($C_1$-$C_6$)alkoxycarbonylamino (e.g. 2-benzyloxycarbonylamino-6-methylbenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanoyloxy($C_1$-$C_6$)alkanoylamino" may include benzyl substituted by methyl and $C_1$-$C_6$ alkanoyloxy($C_1$-$C_6$)-alkanoylamino (e.g. 2-acetoxyacetamido-6-methylbenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkoxycarbonylcarbonylamino" may include benzyl substituted by methyl and $C_1$-$C_6$ alkoxycarbonylcarbonylamino (e.g. 2-methoxalylamino-6-methylbenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and sulfamido" may include benzyl substituted by methyl and sulfamido (e.g. 2-methyl-6-sulfamidobenzyl, etc.), and the like.

Suitable "benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanoylamino having hydroxy" may include benzyl substituted by methyl and $C_1$-$C_6$ alkanoylamino having hydroxy (e.g. 2-hydroxyacetamido-6-methylbenzyl, 2-lactamido-6-methylbenzyl, etc.), and the like.

The processes for preparing the object compounds of the present invention are explained in detail in the following.

Process 1

The object compound (I) or a salt thereof can be prepared by reacting the compound (II) or a salt thereof with the compound (III) or its reactive derivative at the hydroxy group.

Suitable salts of the compound (II) can be referred to the acid addition salt as exemplified for the compound (I), and suitable reactive derivative of the compound (III) may be one, in which the hydroxy group is replaced by an acid residue such as halogen (e.g. fluorine, chlorine, bromine, iodine), acyloxy (e.g. acetoxy, tosyloxy, mesyloxy, etc.), and the like.

This reaction is usually carried out in a solvent such as alcohol [e.g. methanol, ethanol, etc.], benzene, N,N-dimethylformamide, tetrahydrofuran, diethyl ether or any other solvent which does not adversely affect the reaction.

The reaction may be carried out in the presence of an inorganic or an organic base such as an alkali metal hydroxide [e.g. sodium hydroxide, potassium hydroxide, etc.], an alkali metal carbonate [e.g. sodium carbonate, potassium carbonate, etc.], an alkali metal bicarbonate [e.g. sodium bicarbonate, potassium bicarbonate, etc.], tri(lower)alkylamine [e.g. trimethylamine, triethylamine, etc.], pyridine or its derivative [e.g. picoline, lutidine, 4-dimethylaminopyridine, etc.], or the like. In case that the base to be used is liquid, it can also be used as a solvent.

In case that the compound (III) is used in a from of free hydroxy, the reaction can be carried out in the presence of a condensing agent such as N,N-dicyclohexylcarbodiimide; N-cyclohexyl-N'-morpholinoethyl-carbodiimide; N-cyclohexyl-N'-(4-diethylaminocyclohexyl)carbodiimide; N,N'-diethylcarbodiimide, N,N'-

diisopropylcarbodiimide; N-ethyl-N'-(3-dimethylaminopropyl)carbodiimide; N,N-carbonylbis-(2-methylimidazole); pentamethyleneketene-N-cyclohexylimine; diphenylketene-N-cyclohexylimine; ethoxyacetylene; 1-alkoxy-1-chloroethylene; 1,1'-(carbonyldioxy)dibenzotriazole, 1,1'-dibenzotriazolyloxallate trialkylphosphite; ethyl polyphosphate; isopropyl polyphosphate; phosphorus oxychloride (phosphoryl chloride); phosphorus trichloride; thionyl chloride; oxalyl chloride; triphenylphosphine; 2-ethyl-7-hydroxybenzisoxazolium salt; 2-ethyl-5-(m-sulfophenyl)isoxazolium hydroxide intramolecular salt; 1-(p-chlorobenzenesulfonyloxy)-6-chloro-1H-benzotriazole; so-called Vilsmeier reagent prepared by the reaction of dimethylformamide with thionyl chloride, phosgene, phosphorus oxychloride, etc.; or the like.

The reaction temperature is not critical, and the reaction can be carried out under cooling, at ambient temperature or under warming or heating.

Process 2

The object compound (I) or a salt thereof can be prepared by reacting the compound (VI) or a salt thereof with the compound (VII) or its reactive derivative at the hydroxy group.

Suitable salts of the compound (VI) can be referred to the salt as exemplified for the compound (I) and suitable reactive derivative of the compound (VII) may be the same as those given for the compound (III) in Process 1.

This reaction is usually carried out in a solvent such as alcohol [e.g. methanol, ethanol, etc.], benzene, N,N-dimethylformamide, tetrahydrofuran, diethyl ether or any other solvent which does not adversely affect the reaction.

The reaction may be carried out in the presence of an inorganic or an organic base such as an alkali metal hydroxide [e.g. sodium hydroxide, potassium hydroxide, etc.], an alkali metal carbonate [e.g. sodium carbonate, potassium carbonate, etc.], an alkali metal bicarbonate [e.g. sodium bicarbonate, potassium bicarbonate, etc.], tri(lower)alkylamine [e.g. trimethylamine, triethylamine, etc.], pyridine or its derivative [e.g. picoline, lutidine, 4-dimethylaminopyridine, etc.], or the like. In case that the base to be used is liquid, it can also be used as a solvent.

The reaction temperature is not critical, and the reaction can be carried out under cooling, at ambient temperature or under warming or heating.

Process 3

The object compound (Ii) or a salt thereof can be prepared by reducing a compound (Ih) or a salt thereof.

The reduction can be carried out in a conventional manner, namely, chemical reduction or catalytic reduction.

Suitable reducing agents to be used in chemical reduction are a metal hydride compound such as aluminum hydride compound [e.g. lithium aluminum hydride, sodium aluminum hydride, aluminum hydride, lithium trimethoxyaluminum hydride, lithium tri-t-butoxyaluminum hydride, etc.], borohydride compound [e.g. sodium borohydride, lithium borohydride, sodium cyanoborohydride, tetramethylammonium borohydride, etc.], borane, diborane, aluminum halide [e.g. aluminum chloride, etc.], phosphorus trihalide [e.g. phosphorus trichloride, phosphorus tribromide, etc.], ferrous oxalate, a combination of metal [e.g. tin, zinc, iron, etc.] or metallic compound [e.g. chromium chloride, chromium acetate, etc.] and an organic or inorganic acid [e.g. formic acid, acetic acid, propionic acid, trifluoroacetic acid, p-toluenesulfonic acid, hydrochloric acid, hydrobromic acid, etc.] or the like.

Suitable catalysts to be used in catalytic reduction are conventional ones such as platinum catalyst [e.g. platinum plate, spongy platinum, platinum black, colloidal platinum, platinum oxide, platinum wire, etc.], palladium catalyst [e.g. spongy palladium, palladium black, palladium oxide, palladium on carbon, colloidal palladium, palladium on barium sulfate, palladium on barium carbonate, etc.], nickel catalyst [e.g. reduced nickel, nickel oxide, Raney nikel, etc.], cobalt catalyst [e.g. reduced cobalt, Raney cobalt, etc.], iron catalyst [e.g. reduced iron, Raney iron, etc.], copper catalyst [e.g. reduced copper, Raney copper, Ullman copper, etc.] or the like.

The reaction of this process is usually carried out in a solvent such as water, alcohol [e.g. methanol, ethanol, propanol, etc.], acetic acid, diethyl ether, dioxane, tetrahydrofuran, methylene chloride, chloroform, N,N-dimethylformamide, dimethylsulfoxide, or any other organic solvent which does not adversely influence the reaction or a mixture thereof.

The reaction is preferably carried out under somewhat milder conditions such as under cooling to warming.

Process 4

The object compound (Ik) or a salt thereof can be prepared by subjecting the compound (Ij) or a salt thereof to elimination reaction of the amino protective group in $R_1^3$.

Suitable salts of the compound (Ij) and (Ik) can be referred to the salts as exemplified for the compound (I).

Suitable method for this elimination reaction may include conventional one such as hydrolysis, reduction, or the like. The hydrolysis is preferably carried out in the presence of a base or an acid.

Suitable base may include, for example, an inorganic base such as alkali metal hydroxide (e.g. sodium hydroxide, potassium hydroxide, etc.), alkaline earth metal hydroxide (e.g. magnesium hydroxide, calcium hydroxide, etc.), alkali metal carbonate (e.g. sodium carbonate, potassium carbonate, etc.), alkaline earth metal carbonate (e.g. magnesium carbonate, calcium carbonate, etc.), alkali metal bicarbonate (e.g. sodium bicarbonate, potassium bicarbonate, etc.), alkali metal acetate (e.g. sodium acetate, potassium acetate, etc.), alkaline earth metal phosphate (e.g. magnesium phosphate, calcium phosphate, etc.), alkali metal hydrogen phosphate (e.g. disodium hydrogen phosphate, dipotassium hydrogen phosphate, etc.), or the like, and an organic base such as trialkylamine (e.g. trimethylamine, triethylamine, etc.), picoline, N-methylpyrrolidine, N-methylmorpholine, 1,5-diazabicyclo[4,3,0]non-5-one, 1,4-diazabicyclo[2,2,2]octane, 1,5-diazabicyclo[5,4,0]-undecene-5 or the like. The hydrolysis using a base is often carried out in water or a hydrophilic organic solvent or a mixed solvent thereof.

Suitable acid may include an organic acid (e.g. formic acid, acetic acid, propionic acid, etc.) and an inorganic acid (e.g. hydrochloric acid, hydrobromic acid, sulfuric acid, etc.).

The present hydrolysis is usually carried out in an organic solvent, water or a mixed solvent thereof.

The reaction temperature is not critical, and it may suitably be selected in accordance with the kind of the hydroxy protective group and the elimination method.

The object compounds (I) and their pharmaceutically acceptable salts of the present invention are novel and exhibit high inhibitory activity on ulcer.

In order to illustrate the usefulness of the object compound (I), the pharmacological data of the representative compound of the object compound (I) are shown in the following.

(A) Inhibition on ethanol ulcer

Test Method :

Five male Sprague-Dawley rats, aged 7 weeks and weighing about 200 g, were used per group for the study on ethanol ulcer after the fast for 24 hours.

Test compound was suspended in 0.1% methylcellulose aqueous solution, and the suspension (5 ml/kg) was orally given to each rat.

The control group was given a vehicle, i.e. 0.1% methylcellulose aqueous solution (5 ml/kg), alone in the same way.

Absolute ethanol (5 ml/kg) was orally administered 30 minutes after dosing with test compound, and one hour later, the rats were sacrificed and their stomachs were removed. The area of ulcers of each rat was measured. The mean area ($mm^2$) in the medicated group was compared with that in the control group.

Test Compound

(1) 8-(2-Methoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

Test Result

| Inhibition % at the dose of 32 mg/kg : | |
|---|---|
| Test Compound | Inhibition % |
| (1) | 93.2 |

(B) Inhibition on stress ulcer

Test Method :

Five Sprague-Dawley rats weighing about 200 g were used per group. Each animal was immobilized in a small cage and put in a water bath allowing to respire. The temperature of the water bath kept at 22 °C. The test compound was administered orally just before the immobilization. Seven hours later, the animals were sacrificed and their stomachs were removed. The stomach was then fixed with 2% formalin. The area of ulcers was measured for each animal. The mean area ($mm^2$) in the medicated animals was compared with that in the control animals.

Test Compounds

(1) 8-(2-Methoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
(2) 8-(2-Acetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo(1,2-a]pyridine
(3) 2-Methyl-8-(2-methyl-6-ureidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine
(4) 2-Methyl-8-(2-methyl-6-thioureidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

Test Result

| Inhibition % at the dose of 32 mg/kg : | |
|---|---|
| Test Compound | Inhibition % |
| (1) | 100 |
| (2) | 100 |
| (3) | 100 |
| (4) | 100 |

As being apparent from the above test results, the object compound (I) of the present invention are useful as antiulcer medicines.

For therapeutic purpose, the compounds according to the present invention can be used in a form of pharmaceutical preparation containing said compound as an active ingredient, in admixture with a pharmaceutically acceptable carrier such as an organic or inorganic solid or liquid excipient suitable for oral or parenteral administration. The pharmaceutical preparations may be capsules, tablets, dragees, solution, suspension, emulsion, and the like. If desired, there may be included in the above preparations auxiliary substances, stabilizing agents, wetting or emulsifying agents, buffers and other commonly used additives.

While the dosage of the compounds will vary depending upon the age and condition of the patient, an average single dose of about 5 mg, 10 mg, 50 mg, 100 mg, 250 mg, 500 mg, and 1000 mg of the compounds according to the present invention may be effective for treating ulcer. In general, amounts between 1 mg/body and about 2,000 mg/body or even more may be administered per day.

The following preparations and examples are given for the purpose of illustrating the present invention.

Preparation 1

Sodium borohydride (0.248 g) was added portionwise to a solution of 4-acetamido-2-methyl benzaldehyde (2.58 g) in methanol (26 ml) with ice-cooling. After being stirred for 3 hours, the mixture was evaporated in vacuo and the residue was washed with water and dried to give 4-acetamido-2-methylbenzyl alcohol (2.22 g).

mp : 133 to 134 °C
IR (Nujol) : 3275, 3225, 1660, 1610, 1540, 1500, 1005 $cm^{-1}$
NMR (DMSO-$d_6$, $\delta$) : 2.03 (3H, s), 2.23 (3H, s), 4.43 (2H, d, J = 5Hz), 4.90 (1H, t, J = 5Hz), 7.10-7.56 (3H, m), 9.75 (1H, br s)

Preparation 2

A mixture of 3-hydroxy-2-nitropyridine (3.08 g) and potassium carbonate (3.04 g) in N,N-dimethylformamide (31 ml) was stirred at room temperature for 15 minutes and then 2-methoxycarbonylamino-6-

methylbenzyl chloride (4.7 g) was added. After being stirred for 6 hours, the mixture was poured into water and the resulting precipitates were collected by filtration, washed with water, and air-dried to give 3-(2-methoxycarbonylamino-6-methylbenzyloxy)-2-nitropyridine (6.35 g).

mp : 118 to 119 °C (recrystallized from ethanol)
IR (Nujol) : 3280, 1700, 1595, 1515 $cm^{-1}$
NMR ($CDCl_3$, δ) : 2.40 (3H, s), 3.73 (3H, s), 5.23 (2H, s), 6.90-7.80 (6H, m), 8.07-8.20 (1H, m)

Preparation 3

The following compounds were prepared according to a similar manner to that of Preparation 2.

(1) 3-(2-Isonicotinamido-6-methylbenzyloxy)-2-nitropyridine
mp : 118 to 122 °C
IR (Nujol) : 3160, 1650, 1595, 1520 $cm^{-1}$
NMR ($CDCl_3$, δ) : 2.43 (3H, s), 5.26 (2H, s), 7.16 (1H, d, J = 8Hz), 7.37 (1H, t, J = 8Hz), 7.43-7.83 (5H, m), 8.10-8.20 (1H, m), 8.66-8.80 (2H, m), 8.91 (1H, broad s)

(2) 3-(2-Methyl-6-propionamidobenzyloxy)-2-nitropyridine
mp : 134 to 135 °C
IR (Nujol) : 3210, 1635, 1580, 1550, 1530 $cm^{-1}$
NMR ($CDCl_3$, δ) : 1.20 (3H, t, J = 7.5Hz), 2.43 (3H, s), 2.45 (2H, q, J = 7.5Hz), 5.24 (2H, s), 7.08 (1H, d, J = 7Hz), 7.33 (1H, t, J = 7Hz), 7.50-7.80 (3H, m), 8.08 (1H, broad s), 8.20 (1H, dd, J = 2Hz, 4.5Hz)

(3) 3-(2-t-Butoxycarbonylaminoacetamido-6-methylbenzyloxy)-2-nitropyridine
mp : 156 to 158 °C
IR (Nujol) : 3300, 1710, 1685, 1595, 1530 $cm^{-1}$
NMR ($CDCl_3$, δ) : 1.30 (9H, s), 2.40 (3H, s), 3.95 (2H, d, J = 6Hz), 5.20 (2H, s), 5.30 (1H, t, J = 6Hz), 7.08 (1H, d, J = 7.5Hz), 7.30 (1H, t, J = 7.5Hz), 7.50-7.83 (3H, m), 8.17 (1H, dd, J = 2Hz, 4.5Hz), 8.58 (1H, broad s)

(4) 3-(2-Benzyloxycarbonylamino-6-methylbenzyloxy)-2-nitropyridine
mp : 116 to 118 °C (recrystallized from a mixture of diethyl ether and n-hexane)
IR (Nujol) : 3225, 1718, 1590, 1520 $cm^{-1}$
NMR ($CDCl_3$, δ) : 2.40 (3H, s), 5.21 (4H, s), 6.93-7.73 (12H, m), 8.06-8.20 (1H, m)

(5) 3-(2-Isopropoxycarbonylamino-6-methylbenzyloxy)-2-nitropyridine
mp : 106 to 107 °C (recrystallized from a mixture of diethyl ether and n-hexane)
IR (Nujol) : 3200, 1670, 1590, 1523 $cm^{-1}$
NMR ($CDCl_3$, δ) : 1.29 (6H, d, J = 6Hz), 2.42 (3H, s), 5.0 (1H, septet, J = 6Hz), 5.26 (2H, s), 6.93-7.76 (6H, m), 8.08-8.23 (1H, m)

(6) 3-(4-Acetamido-2-methylbenzyloxy)-2-aminopyridine
mp : 189 to 193 °C (recrystallized from a mixture of ethanol and n-hexane)
IR (Nujol) : 3470, 3410, 3300, 1695, 1670, 1600, 1560, 1525 $cm^{-1}$
NMR (DMSO-$d_6$, δ) : 2.03 (3H, s), 2.30 (3H, s), 5.01 (2H, s), 5.52 (2H, br s), 6.50 (1H, dd, J = 5Hz, 8Hz), 7.12 (1H, broad d, J = 8Hz), 7.33-7.66 (4H, m), 9.84 (1H, br s)

(7) 3-(2-Acetoxyacetamido-6-methylbenzyloxy)-2-nitropyridine
mp : 140 to 141 °C (recrystallized from a mixture of diethyl acetate and n-hexane)
IR (Nujol) : 3200, 1740, 1655, 1595, 1525 $cm^{-1}$
NMR ($CDCl_3$, δ) : 1.90 (3H, s), 2.40 (3H, s), 4.65 (2H, s), 5.18 (2H, s), 6.95-7.87 (5H, m), 8.11 (1H, dd, J = 2Hz, 4Hz), 8.30 (1H, broad s)

(8) 3-(2-t-Butoxycarbonylamino-6-methylbenzyloxy)-2-nitropyridine
mp : 101-103 °C
IR (Nujol) : 3290, 1710, 1585, 1525 $cm^{-1}$
NMR ($CDCl_3$, δ) : 1.5 (9H, s), 2.4 (3H, s), 5.26 (2H, s), 6.9-7.8 (6H, m), 8.06-8.23 (1H, m)

Preparation 4

To a mixture of iron powder (2.76 g) and ammonium chloride (0.275 g) in water (19 ml) and ethanol (63 ml) was added portionwise 3-(2-methoxycarbonylamino-6-methylbenzyloxy)-2-nitropyridine (6.27 g) under reflux and then stirred for an additional 30 minutes. The hot mixture was filtered by suction and the filtrate was made alkaline with sodium bicarbonate and evaporated in vacuo. The residue was washed with water, dried, and recrystallized from ethyl acetate to give 2-amino-3-(2-methoxycarbonylamino-6-

methylbenzyloxy)pyridine.

mp : 146 to 148 °C

IR (Nujol) : 3430, 3375, 3270, 3150, 1730, 1620, 1585, 1520, 1230, 1190 $cm^{-1}$

NMR ($CDCl_3$, δ) : 2.37 (3H, s), 3.73 (3H, s), 4.62 (2H, broad s), 5.03 (2H, s), 6.47-6.67 (1H, m), 6.90-7.35 (4H, m), 7.50-7.73 (2H, m)

Preparation 5

The following compounds were prepared according to a similar manner to that of Preparation 4.

(1) 2-Amino-3-(2-isonicotinamido-6-methylbenzyloxy)pyridine

mp : 186 to 188 °C

IR (Nujol) : 3475, 3235, 3125, 1655, 1620, 1520 $cm^{-1}$

NMR (DMSO-$d_6$, δ) : 2.43 (3H, s), 5.06 (2H, s), 5.51 (2H, s), 6.46 (1H, dd, J = 4.5Hz, 7.5Hz), 7.13 (1H, broad d, J = 7.5Hz), 7.16-7.43 (3H, m), 7.51 (1H, dd, J = 1.5Hz, 4.5Hz), 7.80-7.93 (2H, m), 8.73-8.86 (2H, m), 10.33 (1H, s)

(2) 2-Amino-3-(2-methyl-6-propionamidobenzyloxy)pyridine

mp : 161 to 162 °C

IR (Nujol) : 3450, 3280, 3120, 1640, 1610, 1520 $cm^{-1}$

NMR ($CDCl_3$, δ) : 1.15 (3H, t, J = 8Hz), 2.35 (2H, q, J = 8Hz), 2.41 (3H, s), 4.63 (2H, broad s), 5.05 (2H, s), 6.53-6.80 (1H, m), 6.96-7.87 (6H, m)

(3) 2-Amino-3-(2-t-butoxycarbonylaminoacetamido-6-methylbenzyloxy)pyridine

mp : 169 to 170 °C

IR (Nujol) : 3480, 3435, 3360, 1703, 1685, 1615, 1200 $cm^{-1}$

NMR ($CDCl_3$, δ) : 1.38 (9H, s), 2.40 (3H, s), 3.88 (2H, d, J = 6Hz), 4.70 (2H, broad s), 5.10 (2H, s), 5.33-5.70 (1H, m), 6.47-6.83 (1H, m), 6.83-7.50 (3H, m), 7.60-7.93 (2H, m), 8.75 (1H, broad s)

(4) 2-Amino-3-(2-benzyloxycarbonylamino-6-methylbenzyloxy)pyridine

mp : 107 to 109 °C (recrystallized from diethyl ether)

IR (Nujol) : 3460, 3350, 1700, 1615, 1585, 1540 $cm^{-1}$

NMR ($CDCl_3$, δ) : 2.39 (3H, s), 4.63 (2H, br s), 5.06 (2H, s), 5.20 (2H, s), 6.63 (1H, dd, J = 5Hz, 8Hz), 7.05 (1H, dd, J = 2Hz, 8Hz), 7.16-7.50 (8H, m), 7.63 (1H, br s), 7.73 (1H, dd, J = 2Hz, 5Hz)

(5) 2-Amino-3-(2-isopropoxycarbonylamino-6-methylbenzyloxy)pyridine

mp : 112 to 114 °C (recrystallized from a mixture of diethyl ether and n-hexane)

IR (Nujol) : 3450, 3280, 1685, 1620, 1510 $cm^{-1}$

NMR ($CDCl_3$, δ) : 1.26 (6H, d, J = 7Hz), 2.37 (3H, s), 4.68 (2H, br s), 5.0 (1H, septet, J = 7Hz), 5.06 (2H, s), 6.62 (1H, dd, J = 5Hz, 8Hz), 6.90-7.23 (3H, m), 7.38 (1H, d, J = 8Hz), 7.56-7.83 (2H, m)

(6) 3-(2-Acetoxyacetamido-6-methylbenzyloxy)-2-aminopyridine

mp : 151 to 152 °C

IR (Nujol) : 3460, 3330, 1740, 1685, 1620, 1555 $cm^{-1}$

NMR ($CDCl_3$, δ) : 1.73 (3H, s), 2.43 (3H, s), 4.67 (2H, s), 5.10 (2H, s), 6.57-6.87 (1H, m), 7.0-7.57 (3H, m), 7.67-8.02 (2H, m), 8.50 (1H, broad s)

(7) 2-Amino-3-(2-t-butoxycarbonylamino-6-methylbenzyloxy)pyridine

mp : 116-118 °C

IR (Nujol) : 3475, 3425, 3275, 3125, 1725, 1620, 1595, 1580, 1510 $cm^{-1}$

NMR ($CDCl_3$, δ) : 1.50 (9H, s), 2.38 (3H, s), 4.63 (2H, br s), 5.08 (2H, s), 6.65 (1H, dd, J = 5Hz, 8Hz), 6.90-7.20 (3H, m), 7.30 (1H, t, J = 8Hz), 7.56-7.86 (2H, m)

Preparation 6

A solution of 2-amino-3-(2-acetoxyacetamido-6-methylbenzyloxy)pyridine (0.63 g) and 1N sodium hydroxide solution (2 ml) in methanol (20 ml) was stirred at room temperature for 1 hour. The resulting precipitates were collected by filtration to give 2-amino-3-(2-hydroxyacetamido-6-methylbenzyloxy)pyridine.

mp : 207 to 209 °C (dec.)

IR (Nujol) : 3440, 3350, 1675, 1625, 1540 $cm^{-1}$

NMR (DMSO-$d_6$, δ) : 2.43 (3H, s), 4.03 (2H, s), 5.12 (2H, s), 5.50 (2H, br s), 6.43-7.73 (1H, m), 7.0-7.8 (5H, m)

Preparation 7

Acetic formic anhydride (1.85 g) was added to a solution of 2-amino-6-methylbenzyl alcohol (2.74 g) in benzene (55 ml) at room temperature. After being stirred for 2 hours, the mixture was diluted with n-hexane (10 ml) and the precipitates were collected by filtration to give 2-formamido-6-methylbenzyl alcohol (2.8 g).

mp : 99 to 100 °C

IR (Nujol) : 3240, 1660, 1595, 1575, 1520 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.33 (3H, s), 4.48 (2H, s),

$$\left.\begin{matrix}6.83\text{-}7.23\\7.43\text{-}7.63\end{matrix}\right\}(3H,\ m),\ \left.\begin{matrix}8.24\ (s)\\8.37\ (s)\end{matrix}\right\}(1H)$$

Preparation 8

A mixture of 2-amino-6-methylbenzyl alcohol (0.274 g) and methyl isocyanate (0.11 g) in benzene (5.2 ml) was stirred at room temperature for 15 minutes. The resulting precipitates were collected by filtration and dried to give 6-methyl-2-(3-methyl ureido)benzyl alcohol (0.24 g)

mp : 158 to 160 °C (dec.)

IR (Nujol) : 3375, 3260, 1665, 1600, 1550, 990 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.30 (3H, s), 2.62 (3H, d, J = 4.5Hz), 4.47 (2H, broad d), 4.7-5.3 (1H, m), 6.47-6.80 (1H, m), 6.80 (1H, dd, J = 2Hz, 8Hz), 7.05 (1H, t, J = 8Hz), 7.53 (1H, dd, J = 2Hz, 8Hz), 7.90 (1H, s)

Preparation 9

A solution of methyl chloroformate (0.416 g) in methylene chloride (1 ml) was added dropwise to a solution of 2-amino-6-methylbenzyl alcohol (0.549 g) and pyridine (0.364 g) in methylene chloride (10 ml) with ice cooling. After being stirred for 1 hour, the mixture was poured into 1N hydrochloric acid and extracted with methylene chloride. The extract was washed with water, dried over magnesium sulfate, and evaporated in vacuo. The crystalline residue was washed with n-hexane and dried to give 2-methoxycarbonylamino-6-methylbenzyl alcohol (0.64 g).

mp : 111 to 113 °C

IR (Nujol) : 3450, 3260, 1685, 1602, 1580, 1540 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.36 (3H, s), 2.46 (1H, t, J = 6Hz), 3.73 (3H, s), 4.67 (2H, d, J = 6Hz), 6.87 (1H, d, J = 7.5Hz), 7.11 (1H, t, J = 7.5Hz), 7.47 (1H, d, J = 7.5Hz), 7.40-7.70 (1H, broad s)

Preparation 10

To a solution of t-butoxycarbonylaminoacetic acid (3.5 g) in methylene chloride (50 ml) was added triethylamine (2.0 g) and then ethyl chloroformate (1.9 ml) with ice-cooling. After being stirred for 1 hour, 2-amino-6-methylbenzyl alcohol (2.74 g) was added thereto and the mixture was stirred for 7 days at an ambient temperature. To the mixture was added a saturated aqueous solution of sodium hydrogen carbonate and the organic layer was separated, washed with water and dried over magnesium sulfate. The solvent was distilled off and the residue was triturated with diethyl ether to give 2-(t-butoxycarbonylaminoacetamido)-6-methylbenzyl alcohol (1.04 g).

mp : 138 to 141 °C

IR (Nujol) : 3410, 3270, 1705, 1645, 1595, 1575, 1240 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.45 (9H, s), 2.35 (3H, s), 3.86 (2H, d, J = 6Hz), 4.63 (2H, s), 5.55 (1H, t, J = 6Hz), 6.86-7.06 (1H, m), 7.17 (1H, t, J = 7.5Hz), 7.57 (1H, broad d, J = 7.5Hz), 9.10 (1H, broad s)

Preparation 11

A solution of potassium cyanate (1.62 g) in water (5 ml) was added dropwise to a mixture of 2-amino-6-methylbenzyl alcohol (1.37 g), water (5 ml), and acetic acid (6 ml) at room temperature. After being stirred for 2.5 hours, the resulting precipitates were collected by filtration, washed with water, and dried to give 6-

methyl-2-ureidobenzyl alcohol (1.33 g).

mp : 161 to 163 °C (dec.) (recrystallized from ethanol)
IR (Nujol) : 3350, 3270, 1655, 1590, 1530, 1000 $cm^{-1}$
NMR (DMSO-$d_6$, $\delta$) : 2.32 (3H, s), 4.45 (2H, d, J = 5Hz), 4.93 (1H, d, J = 5Hz), 6.08 (2H, broad s), 6.82 (1H, d, J = 8Hz), 7.05 (1H, t, J = 8Hz), 7.55 (1H, d, J = 8Hz), 7.93 (1H, s)

Preparation 12

The following compounds were prepared according to similar manners to those of Preparations 7 to 11.

(1) 2-Benzyloxycarbonylamino-6-methylbenzyl alcohol
mp : 91 to 93 °C
IR (Nujol) : 3430, 3375, 1700, 1600, 1585, 1525 $cm^{-1}$
NMR ($CDCl_3$, $\delta$) : 2.33 (3H, s), 2.23-2.73 (1H, br s), 4.66 (2H, s), 5.16 (2H, s), 6.92 (1H, d, J = 8Hz), 7.16 (1H, t, J = 8Hz), 7.26-7.50 (5H, m), 7.57 (1H, d, J = 8Hz), 7.80 (1H, br s)

(2) 2-Isopropoxycarbonylamino-6-methylbenzyl alcohol
mp : 59 to 61 °C (recrystallized from n-hexane)
IR (Nujol) : 3420, 3325, 1700, 1600, 1590, 1520 $cm^{-1}$
NMR ($CDCl_3$, $\delta$) : 1.28 (6H, d, J = 6Hz), 2.36 (3H, s), 2.70 (1H, br s), 4.69 (2H, s), 5.00 (1H, septet, J = 6Hz), 6.96 (1H, d, J = 7Hz), 7.20 (1H, t, J = 7Hz), 7.50-7.66 (2H, m)

(3) 2-Ethoxycarbonylamino-6-methylbenzyl alcohol
mp : 58 to 59 °C (recrystallized from n-hexane)
IR (Nujol) : 3415, 3320, 1695, 1685, 1620, 1600 $cm^{-1}$
NMR ($CDCl_3$, $\delta$) : 1.30 (3H, t, J = 7Hz), 2.36 (3H, s), 2.30-2.70 (1H, br s), 4.21 (2H, q, J = 7Hz), 4.70 (2H, s), 6.93 (1H, br dd, J = 2Hz, 8Hz), 7.19 (1H, t, J = 8Hz), 7.55 (1H, br dd, J = 2Hz, 8Hz), 7.50-7.80 (1H, br s)

(4) 2-Methanesulfonylamino-6-methylbenzyl alcohol
mp : 79 to 81 °C (recrystallized from cyclohexane)
IR (Nujol) : 3380, 3225, 3050, 1580, 1515, 1140, 1095, 1070 $cm^{-1}$
NMR ($CDCl_3$, $\delta$) : 2.39 (3H, s), 2.87 (1H, br t, J = 5Hz), 3.01 (3H, s), 4.82 (2H, br d, J = 5Hz), 6.93-6.40 (3H, m), 7.69 (1H, br s)

(5) 3-Acetamido-2-methylbenzyl alcohol
mp : 117 to 118 °C
IR (Nujol) : 3250, 1645, 1600, 1535, 1100 $cm^{-1}$
NMR (DMSO-$d_6$, $\delta$) : 2.02 (3H, s), 2.06 (3H, s), 4.50 (2H, d, J = 5Hz), 5.02 (1H, t, J = 5Hz), 7.00-7.30 (3H, m), 9.29 (1H, br s)

(6) 2-Acetoxyacetamido-6-methylbenzyl alcohol
mp : 108 to 110 °C (recrystallized from ethyl acetate)
IR (Nujol) : 3280, 1760, 1660, 1605, 1580, 1530, 1210 $cm^{-1}$
NMR ($CDCl_3$, $\delta$) : 2.23 (3H, s), 2.40 (3H, s), 2.60 (1H, t, J = 7.5Hz), 4.70 (2H, s), 4.73 (2H, d, J = 7.5Hz), 6.87-7.43 (2H, m), 7.70-7.93 (1H, m), 9.23 (1H, br s)

(7) 2-t-Butoxycarbonylamino-6-methylbenzyl alcohol
mp : 96 to 98 °C
IR (Nujol) : 3450, 3320, 1695, 1600, 1580, 1520 $cm^{-1}$
NMR ($CDCl_3$, $\delta$) : 1.50 (9H, s), 2.40 (2H, s), 4.73 (2H, d, J = 6Hz), 6.80-7.63 (4H, m)

(8) 2-Acetamido-6-methylbenzyl alcohol
mp : 118 to 119 °C
IR (Nujol) : 3360, 3280, 1645, 1600, 1530 $cm^{-1}$
NMR (DMSO-$d_6$, $\delta$) : 2.07 (3H, s), 2.37 (3H, s), 4.50 (2H, s), 6.87-7.47 (3H, m), 9.33 (1H, br s)

(9) 2-Isonicotinamido-6-methylbenzyl alcohol
mp : 133 to 135 °C (recrystallized from benzene)
IR (Nujol) : 3260, 1630, 1600, 1578, 1520, 1005 $cm^{-1}$
NMR ($CDCl_3$, $\delta$) : 2.30 (3H, s), 4.05 (1H, broad s), 4.83 (2H, s), 6.96 (1H, d, J = 8Hz), 7.21 (1H, t, J = 8Hz), 7.70-7.86 (2H, m), 8.01 (1H, d, J = 8Hz), 8.53-8.80 (2H, m), 10.21 (1H, s)

(10) 2-Methyl-6-propionamidobenzyl alcohol
mp : 75 to 76 °C
IR (Nujol) : 3275, 1650, 1600, 1585, 1520, 1005 $cm^{-1}$
NMR ($CDCl_3$, $\delta$) : 1.20 (3H, t, J = 7.5Hz), 2.35 (3H, s), 2.37 (2H, g, J = 7.5Hz), 3.16 (1H, broad s),

4.60 (2H, s), 6.98 (1H, broad d, J = 7.5Hz), 7.16 (1H, t, J = 7.5Hz), 7.52 (1H, broad d, J = 7.5Hz), 8.52 (1H, broad s)

Preparation 13

A mixture of 6-methyl-2-ureidobenzyl alcohol (1 g) and thionyl chloride (0.66 g) in methylene chloride (20 ml) was stirred for 2 hours at room temperature and evaporated in vacuo. The residue was washed with water and dried in a desiccator to give 6-methyl-2-ureidobenzyl chloride (0.66 g).

IR (Nujol) : 3250, 1650, 1540 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 4.83 (2H, s)

Preparation 14

The following compounds were prepared according to a similar manner to that of Preparation 13.

(1) 2-Acetoxyacetamido-6-methylbenzyl chloride

mp : 113 to 115 °C

IR (Nujol) : 3260, 1740, 1660, 1600, 1540, 1220 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.27 (3H, s), 2.45 (3H, s), 4.67 (2H, s), 4.77 (2H, s), 7.10 (1H, d, J = 8Hz), 7.30 (1H, t, J = 8Hz), 7.77 (1H, d, J = 8Hz), 8.27 (1H, br s)

(2) 2-Isonicotinamido-6-methylbenzyl chloride mono hydrochloride

mp : 247 °C (dec.)

IR (Nujol) : 3240, 3050, 1650, 1590, 1530 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.46 (3H, s), 4.93 (2H, s), 7.10-7.46 (3H, m), 8.40-8.63 (2H, m), 9.0-9.26 (2H, m), 10.57 (1H, broad s), 10.90 (1H, broad s)

(3) 2-Methyl-6-propionamidobenzyl chloride

mp : 105 to 109 °C (dec.)

IR (Nujol) : 3260, 1650, 1585, 1520 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 1.10 (3H, t, J = 7Hz), 2.16-2.60 (3H, g, J = 7Hz), 2.39 (3H, s), 4.80 (2H, s), 7.0-7.43 (3H, m), 9.53 (1H, s)

(4) 2-t-Butoxycarbonylaminoacetamido-6-methylbenzyl chloride

mp : 70 to 73 °C

IR (Nujol) : 3350, 1695, 1680, 1580, 1495 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.47 (9H, s), 2.40 (3H, s), 3.95 (2H, d, J = 6Hz), 4.63 (2H, s), 5.33 (1H, t, J = 6Hz), 7.03 (1H, d, J = 8Hz), 7.23 (1H, t, J = 8Hz), 7.63 (1H, d, J = 8Hz), 8.33 (1H, broad s)

(5) 2-Formamido-6-methylbenzyl chloride

mp : 126 to 129 °C

IR (Nujol) : 3200, 1650, 1525, 1280 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.43 (3H, s), 4.64 (2H, s), 6.90-7.80 (4H, m), 8.40, 8.52 (1H, each s)

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(6) 2-Benzyloxycarbonylamino-6-methylbenzyl chloride

mp : 114 to 115 °C

IR (Nujol) : 3290, 1685, 1600, 1590, 1525 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.41 (3H, s), 4.65 (2H, s), 5.22 (2H, s), 6.83 (1H, br s), 6.99 (1H, br dd, J = 2Hz, 8Hz), 7.17 (1H, d, J = 8Hz), 7.39 (5H, s), 7.62 (1H, br dd, J = 2Hz, 8Hz)

(7) 2-Isopropoxycarbonylamino-6-methylbenzyl chloride

mp : 141 to 146 °C

IR (Nujol) : 3275, 1685, 1600, 1585, 1525 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 1.23 (6H, d, J = 6Hz), 2.39 (3H, s), 4.83 (2H, s), 4.87 (1H, septet, J = 6Hz), 6.93-7.45 (3H, m), 8.89 (1H, s)

(8) 2-Ethoxycarbonylamino-6-methylbenzyl chloride

mp : 112 to 113 °C

IR (Nujol) : 3260, 1680, 1590, 1580, 1520 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.31 (3H, t, J = 7Hz), 2.41 (3H, s), 4.25 (2H, q, J = 7Hz), 4.66 (2H, s), 6.75 (1H, br s), 7.01 (1H, d, J = 8Hz), 7.25 (1H, t, J = 8Hz), 7.62 (1H, d, J = 8Hz)

(9) 2-Methanesulfonylamino-6-methylbenzyl chloride

mp : 156 to 158 °C

IR (Nujol) : 3230, 1590, 1320, 1140 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.46 (3H, s), 3.10 (3H, s), 4.76 (2H, s), 6.69 (1H, br s), 7.05-7.50 (3H, m)

(10) 3-Acetamido-2-methylbenzyl chloride

IR (Nujol) : 3260, 1645, 1590, 1525 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.05 (3H, s), 2.22 (3H, s), 4.80 (2H, s), 7.05-7.50 (3H, m), 9.37 (1H, br s)

(11) 4-Acetamido-2-methylbenzyl chloride

mp : 143 to 145 °C

IR (Nujol) : 3310, 3190, 3125, 1665, 1610, 1540 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.02 (3H, s), 2.32 (3H, s), 4.69 (2H, s), 7.10-7.43 (3H, m), 9.83 (1H, br s)

(12) 6-Methyl-2-(3-methylureido)benzyl chloride

mp : 172 to 175 °C

IR (Nujol) : 3325, 3260, 1620, 1565, 1260 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.43 (3H, 5), 3.80 (3H, s), 4.67 (2H, s), 6.50-7.75 (5H, m)

(13) 2-Methoxycarbonylamino-6-methylbenzyl chloride

mp : 125 to 127 °C

IR (Nujol) : 3275, 1680, 1595, 1580, 1520 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.42 (3H, s), 3.78 (3H, s), 4.65 (2H, s), 6.55-7.00 (1H, broad s), 7.00 (1H, dd, J = 2Hz, 7.5Hz), 7.25 (1H, t, J = 7.5Hz), 7.60 (1H, dd, J = 7.5Hz)

(14) 5-Acetamido-2-methylbenzyl chloride

mp : 76 to 79 °C

IR (Nujol) : 3220, 1650, 1590, 1320, 1260 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.23 (3H, s), 2.37 (3H, s), 4.55 (2H, s), 7.00-7.60 (3H, m), 8.20-8.70 (1H, broad

(15) 2-t-Butoxycarbonylamino-6-methylbenzyl chloride

mp : 75 to 76 °C

IR (Nujol) : 3355, 1685, 1600, 1582, 1510 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.52 (9H, s), 2.42 (3H, s), 4.67 (2H, s), 6.60 (1H, broad s), 7.0 (1H, d, J = 7.5Hz), 7.40 (1H, t, J = 7.5Hz), 7.80 (1H, d, J = 7.5Hz)

(16) 2-Acetamido-6-methylbenzyl chloride

mp : 182 to 186 °C (dec.)

IR (Nujol) : 3360, 1650, 1600, 1530 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.07 (3H, s), 2.40 (3H, s), 4.80 (2H, s), 7.00-7.40 (3H, m), 9.53 (1H, br s)

Preparation 15

A mixture of 2,6-dinitrobenzyl acetate (0.56 g), platinic oxide (73 mg), acetic acid (6 ml) and acetic anhydride (6 ml) was stirred in hydrogen gas at room temperature until the theoretical amount of hydrogen gas had been absorbed. The catalyst was removed by filtration and the filtrate was evaporated under reduced pressure. The resultant residue was subjected to column chromatography on silica gel (18 g) and eluted with a mixture of chloroform and methanol (100:3) to give 2,6-di(acetamido)benzyl acetate (0.45 g).

mp : 222 to 223 °C

IR (Nujol) : 3260, 1725, 1650, 1220 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 1.97 (3H, s), 2.03 (6H, s), 5.03 (2H, s), 7.13-7.32 (3H, m), 9.40 (2H, br s)

Preparation 16

To a solution of 2,6-di(acetamido)benzyl acetate (0.97 g) in methanol (70 ml) was added an aqueous solution (1.8 ml) of potassium carbonate (608 mg) and the mixture was stirred at room temperature for 1 hour. After methanol was evaporated under reduced pressure, the resultant residue was subjected to column chromatography on silica gel (18 g) and eluted with a mixture of chloroform and methanol (20:1) to give 2,6-di(acetamido)benzyl alcohol (0.67 g).

mp : 161 to 162 °C

IR (Nujol) : 3270, 1650, 1380 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.05 (6H, s), 4.50 (2H, d, J = 5Hz), 5.30 (1H, t, J = 5Hz), 7.17-7.53 (3H, m), 9.47 (2H, br s)

Preparation 17

A solution of 2-amino-3-methoxymethoxypyridine (7.5 g) and 3-mesyloxy-5-hexyn-2-one (10.18 g) in ethanol (150 ml) was refluxed for 46.5 hours and then evaporated in vacuo. To the residue was added 20%

sulfuric acid (75 ml) and the mixture was stirred for 5 hours at room temperature. The mixture was made alkaline with sodium bicarbonate and extracted with chloroform. The extract was washed with brine, dried over magnesium sulfate, and evaporated in vacuo. The residue was purified by column chromatography on silica gel (30 g) with chloroform and then a mixture of chloroform and methanol (30:1 to 20:1) as eluents. The eluates were evaporated in vacuo and the residue was recrystallized from a mixture of ethyl acetate and n-hexane to give 8-hydroxy-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (1.93 g).

mp : 175 to 177 °C

NMR ($CDCl_3$, $\delta$) : 2.03 (1H, t, J = 3Hz), 2.45 (3H, s), 3.73 (2H, d, J = 3Hz), 6.70-6.90 (2H, m), 7.57-7.76 (1H, m), 11.29 (1H, s)

Example 1

A mixture of 8-hydroxy-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (0.571 g) and potassium carbonate (0.424 g) in N,N-dimethylformamide (11.5 ml) was stirred at room temperature for 20 minutes under a nitrogen atmosphere and then 6-methyl-2-ureidobenzyl chloride (0.6 g) was added. After being stirred for 2.5 hours. The mixture was poured into water and the resulting precipitates were collected by filtration. The crude product was purified by column chromatography on silica gel (25 g) with a mixture of chloroform and methanol (100:1 to 100:4) as eluents to give 2-methyl-8-(6-methyl-2-ureidobenzyloxy)-3-(2-propynyl)-imidazo[1,2-a]pyridine (0.13 g).

mp : 197 to 199 °C (dec.)

IR (Nujol) : 3380, 3270, 3240, 3170, 1660, 1590, 1540, 1090 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.30 (3H, s), 2.35 (3H, s), 2.97 (1H, t, J = 3Hz), 3.95 (2H, d, J = 3Hz), 5.23 (2H, s), 6.10 (2H, s), 6.70-7.43 (4H, m), 7.60-8.10 (2H, m), 8.20 (1H, s)

Example 2

The following compounds were prepared according to a similar manner to that of Example 1.

(1) 8-(2-Formamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 189 to 190 °C (recrystallized from ethanol)

IR (Nujol) : 3200, 1685, 1605, 1585, 1540, 1280 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.08 (1H, t, J = 3Hz), 2.45, 2.50, 2.52, 2.57 (6H, each s), 3.75 (2H, d, J = 3Hz), 5.28, 5.33 (2H, each s), 6.55-7.30, 7.65-8.10 (6H, m), 8.40-8.63 (1H, m), 10.70-11.20 (1H, broad m)

MASS : $M^+$ 333

(2) 8-(2-Ethoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 175 to 177 °C (recrystallized from a mixture of ethyl acetate and n-hexane)

IR (Nujol) : 3280, 1710, 1540 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.29 (3H, t, J = 6Hz), 2.06 (1H, t, J = 3Hz), 2.47 (3H, s), 2.50 (3H, s), 3.76 (2H, d, J = 3Hz), 4.20 (2H, q, J = 6Hz), 5.38 (2H, s), 6.60-6.80 (2H, m), 6.92 (1H, d, J = 7.5Hz), 7.21 (1H, t, J = 7.5Hz), 7.63 (1H, d, J = 7.5Hz), 7.70-7.83 (1H, m), 8.89 (1H, br s)

(3) 8-(2-Methanesulfonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 135 to 136 °C (recrystallized from a mixture of ethyl acetate and n-hexane)

IR (Nujol) : 3275, 1540, 1323, 1145 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.06 (1H, t, J = 3Hz), 2.53 (6H, s), 2.93 (3H, s), 3.76 (2H, d, J = 3Hz), 5.47 (2H, s), 6.62-6.90 (2H, m), 6.96-7.33 (1H, br s), 7.03 (1H, br d, J = 7Hz), 7.22 (1H, t, J = 7Hz), 7.52 (1H, dd, J = 7Hz), 7.83 (1H, dd, J = 1.5Hz, 6Hz)

| Analysis Calcd. for $C_{20}H_{21}N_3O_3S$ : | | | |
|---|---|---|---|
| Found : | C 62.64,<br>C 62.72, | H 5.52,<br>H 5.57, | N 10.96<br>N 10.16 |

(4) 8-(3-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 207 to 208 °C (recrystallized from ethanol and diisopropyl ether)

IR (Nujol) : 3200, 1635, 1540 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.03 (3H, s), 2.17 (3H, s), 2.30 (3H, s), 2.90 (1H, t, J = 3Hz), 3.86 (2H, d, J = 3Hz), 5.21 (2H, s), 6.63-6.86 (2H, m), 6.96-7.36 (3H, m), 7.80 (1H, dd,

J = 3Hz, 5Hz), 9.26 (1H, s)

| Analysis Calcd. for $C_{21}H_{21}N_3O_2$ : | | | |
|---|---|---|---|
| Found : | C 72.60,<br>C 72.76, | H 6.09,<br>H 5.83, | N 12.10<br>N 12.17 |

(5) 2-Methyl-8-[6-methyl-2-(3-methylureido)benzyloxy]-3-(2-propynyl)imidazo[1,2-a]pyridine
mp : 214 to 215 °C (dec.) (recrystallized from ethanol)
IR (Nujol) : 3400, 3290, 1695, 1605 $cm^{-1}$
NMR (DMSO-$d_6$, δ) : 2.30 (3H, s), 2.31 (3H, s), 2.62 (3H, d, J = 5Hz), 2.93 (1H, t, J = 3Hz), 3.89 - (2H, d, J = 3Hz), 5.13 (2H, s), 6.45 (1H, q, J = 5Hz), 6.70-6.93 (3H, m), 7.14 (1H, t, J = 7.5Hz), 7.57 (1H, broad d, J = 7.5Hz), 7.85 (1H, t, J = 4.5Hz), 8.03 (1H, s)

(6) 8-(5-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
mp : 235 to 237 °C (dec.) (recrystallized from ethanol)
IR (Nujol) : 3270, 1670, 1595, 1535, 1490 $cm^{-1}$
NMR (DMSO-$d_6$, δ) : 2.00 (3H, s), 2.28 (3H, s), 2.30 (3H, s), 2.90 (1H, t, J = 3Hz), 3.87 (2H, d, J = 3Hz), 5.16 (2H, s), 6.57-6.88 (2H, m), 7.06 (1H, d, J = 9Hz), 7.35-7.56 (2H, m), 7.80 (1H, dd, J = 2Hz, 6Hz), 9.78 (1H, s)

(7) 8-(2-t-Butoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
IR ($CHCl_3$) : 3400, 3300, 1710, 1580, 1535, 1370, 1270, 1150 $cm^{-1}$
NMR($CDCl_3$, δ) : 1.47 (9H, s), 2.05 (1H, t, J = 3Hz), 2.42 (3H, s), 2.47 (3H, s), 3.75 (2H, d, J = 3Hz), 5.35 (2H, s), 6.55-6.70 (2H, m), 6.88 (1H, d, J = 7.5Hz), 7.15 (1H, t, J = 7.5Hz), 7.51 (1H, d, J = 7.5Hz), 7.71 (1H, dd, J = 3Hz, 5Hz), 7.98 (1H, broad s)

(8) 8-(2-Acetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
mp : 194 to 195 °C (recrystallized from a mixture of ethanol and diisopropyl ether)
IR (Nujol) : 3340, 3270, 1683, 1603, 1585, 1280 $cm^{-1}$
NMR ($CDCl_3$, δ) : 2.07 (1H, t, J = 3Hz), 2.17 (3H, s), 2.43 (6H, s), 3.76 (2H, d, J = 3Hz), 5.30 (2H, s), 6.63-6.73 (2H, m), 6.90 (1H, br d, J = 7.5Hz), 7.17 (1H, t, J = 7.5Hz), 7.60-7.83 (2H, m), 9.07 (1H, br s)

| Analysis Calcd. for $C_{21}H_{21}N_3O_2$ : | | | |
|---|---|---|---|
| Found : | C 72.60,<br>C 73.10, | H 6.09,<br>H 6.21, | N 12.09<br>N 11.72 |

Example 3

A mixture of 2-amino-3-(2-methoxycarbonylamino-6-methylbenzyloxy)pyridine (4.22 g) and 3-mesyloxy-5-hexyn-2-one (2.74 g) in ethanol (42 ml) was refluxed for 62 hours and then evaporated in vacuo. To the residue was added and aqueous solution of sodium bicarbonate and the insoluble material was collected by filtration. The crude product was purified by column chromatography on silica gel (150 g) with methylene chloride and then a mixture of methylene chloride and acetonitrile (10:1) as eluents to afford a solid, which was recrystallized from a mixture of ethyl acetate and cyclohexane to give 8-(2-methoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine.
mp : 179 to 180 °C

| Analysis Calcd. for $C_{21}H_{21}N_3O_3$ : | | | |
|---|---|---|---|
| Found : | C 69.40,<br>C 69.79, | H 5.82,<br>H 5.76, | N 11.56<br>N 11.68 |

Example 4

The following compounds were prepared according to a similar manner to that of Example 3.

(1) 8-(2-Isonicotinamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 174 to 175 °C (recrystallized from ethyl acetate and n-hexane)

IR (Nujol) : 3375, 3245, 1680, 1600, 1540, 1520 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.10 (1H, t, J = 3Hz), 2.34 (3H, s), 2.49 (3H, s), 3.76 (2H, d, J = 3Hz), 5.45 (2H, s), 6.63-6.86 (2H, m), 7.07 (1H, d, J = 8Hz), 7.33 (1H, t, J = 8Hz), 7.75-8.00 (4H, m), 8.56-8.70 (2H, m), 9.90 (1H, broad s)

| Analysis Calcd. for $C_{25}H_{22}N_4O_2$ : | | | |
|---|---|---|---|
| Found : | C 73.15, C 74.48, | H 5.40, H 5.38, | N 13.65 N 13.70 |

(2) 2-Methyl-8-(2-methyl-6-propionamidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 164 to 165 °C (recrystallized from ethyl acetate)

IR (Nujol) : 3310, 1690, 1600, 1585, 1540 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 1.05 (3H, t, J = 7.5Hz), 2.31 (3H, s), 2.40 (3H, s), 2.20-2.56 (2H, 4, J = 7.5Hz), 2.94 (1H, t, J = 3Hz), 3.91 (2H, d, J = 3Hz), 5.23 (2H, s), 6.73-7.30 (2H, m), 7.03-7.50 (3H, m), 7.95 (1H, dd, J = 3.6Hz), 9.60 (1H, s)

| Analysis Calcd. for $C_{22}H_{23}N_3O_2$ : | | | |
|---|---|---|---|
| Found : | C 73.11, C 73.14, | H 6.41, H 6.37, | N 11.63 N 14.49 |

(3) 8-(2-t-Butoxycarbonylaminoacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]-pyridine

NMR ($CDCl_3$, $\delta$) : 1.30 (9H, s), 2.08 (1H, t, J = 3Hz), 2.47 (6H, s), 3.78 (2H, d, J = 3Hz), 4.03 (2H, d, J = 6Hz), 5.42 (2H, s), 6.70-7.40 (5H, m), 7.77-8.10 (2H, m), 9.67 (1H, broad s)

(4) 8-(2-Benzyloxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 160 to 161 °C (recrystallized from a mixture of ethyl acetate and diisopropyl ether)

IR (Nujol) : 3290, 1705, 1540 $cm^{-1}$

NMR ($CDCl_3$) : 2.06 (1H, t, J = 3Hz), 2.33 (3H, s), 2.47 (3H, s), 3.74 (2H, d, J = 3Hz), 5.20 (2H, s), 5.40 (2H, s), 6.63-6.86 (2H, m), 6.98 (1H, d, J = 7Hz), 7.23-7.46 (6H, m), 7.66-7.93 (2H, m), 9.22 (1H, s)

| Analysis Calcd. for $C_{27}H_{25}N_3O_3$ : | | | |
|---|---|---|---|
| Found : | C 73.79, C 73.41, | H 5.73, H 5.61, | N 9.56 N 9.61 |

(5) 8-(2-Isopropoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 119 to 120 °C (recrystallized from a mixture of diisopropyl ether and n-hexane)

IR (Nujol) : 3280, 1705, 1540 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.26 (6H, d, J = 7Hz), 2.07 (1H, t, J = 3Hz), 2.47 (3H, s), 2.52 (3H, s), 3.78 (2H, d, J = 3Hz), 5.03 (1H, septet, J = 7Hz), 5.43 (2H, s), 6.75 (2H, d, J = 4Hz), 6.99 (1H, d, J = 8Hz), 7.26 (1H, t, J = 8Hz), 7.69 (1H, d, J = 8Hz), 7.83 (1H, t, J = 4Hz), 8.63 (1H, s)

| Analysis Calcd. for $C_{23}H_{25}N_3O_3$ : | | | |
|---|---|---|---|
| Found : | C 70.57, C 70.60, | H 6.44, H 6.43, | N 10.78 N 10.48 |

(6) 8-(4-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a)pyridine

mp : 189 to 191 °C (recrystallized from a mixture of ethyl acetate and n-hexane)

IR (Nujol) : 3250, 1680, 1590, 1540 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.96 (3H, s), 2.06 (1H, t, J = 3Hz), 2.26 (3H, s), 2.40 (3H, s), 3.76 (2H, d, J = 3Hz), 5.10 (1H, s), 6.55 (1H, d, J = 7Hz), 6.75 (1H, t, J = 7Hz), 7.13 (1H, d, J = 9Hz), 7.29 (1H, dd, J = 2Hz, 9Hz), 7.45 (1H, d, J = 2Hz), 7.73 (1H, d, J = 7Hz), 9.41 (1H, br s)

| Analysis Calcd. for $C_{21}H_{21}N_3O_2$ : | | | |
|---|---|---|---|
| Found : | C 72.60, C 72.45, | H 6.09, H 6.01, | N 12.10 N 11.80 |

(7) 8-(2-Hydroxyacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 220 to 222 °C (dec.)

IR (Nujol) : 3320, 3190, 1680, 1520, 1280 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.33 (3H, s), 2.47 (3H, s), 2.95 (1H, t, J = 3Hz), 3.93 (2H, d, J = 3Hz), 4.02 (2H, s), 5.38 (2H, s), 6.80-7.63 (4H, m), 7.63-8.03 (2H, m), 9.67 (1H, br s)

(8) 8-(2-Acetoxyacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 159 to 160 °C

IR (Nujol) : 3390, 3275, 1740, 1685, 1600, 1525, 1270, 1220 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 1.97 (3H, s), 2.30 (3H, s), 2.40 (3H, s), 2.93 (1H, t, J = 3Hz), 3.92 (2H, d, J = 3Hz), 4.67 (2H, s), 5.23 (2H, s), 6.77-7.50 (5H, m), 7.83-8.03 (1H, m), 9.73 (1H, br s)

## Example 5

A mixture of dimethylformamide (277 mg) and phosphorus oxychloride (0.35 ml) was warmed for 1 hour at 40 °C. After cooling, dry methylene chloride (4 ml) was added thereto. Pyruvic acid (303 mg) was added thereto with stirring at -20 °C and the mixture was stirred for 1 hour at the same temperature to produce an activated acid solution. On the other hand, 8-(2-amino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo-[1,2-a]pyridine (0.7 g) was dissolved in a solution of bis(trimethylsilyl)acetamide (1.2 g) in dry methylene chloride (10 ml). To the solution was at a time added the above obtained activated acid solution at -30 °C and the mixture was stirred for 30 minutes at the same temperature. To the reaction mixture was added a saturated aqueous solution of sodium hydrogen carbonate and the organic layer was separated, washed with water and dried over magnesium sulfate.

The solvent was distilled off, and the residue was subjected to column chromatography on silica gel (20 g) and eluted with a mixture of chloroform and methanol (100:1) to give 2-methyl-3-(2-propynyl)-8-(2-pyruvamido-6-methylbenzyloxy)imidazo[1,2-a]pyridine (419 mg).

mp : 158 to 160 °C (recrystallized from a mixture of ethyl acetate and n-hexane)

IR (Nujol) : 3330, 3260, 1725, 1690, 1600, 1545 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.08 (1H, t, J = 3Hz), 2.43 (6H, s), 2.48 (3H, s), 3.78 (2H, d, J = 3Hz), 5.38 (2H, s), 6.65-6.92 (2H, m), 7.07 (1H, d, J = 7.5Hz), 7.32 (1H, t, J = 7.5Hz), 7.75-7.95 (2H, m), 9.67 (1H, broad s)

## Example 6

The following compounds were prepared according to a similar manner to that of Example 5.

(1) 8-(2-n-Butyramido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 158 to 160 °C (recrystallised from a mixture of ethyl acetate and n-hexane)

IR (Nujol) : 3275, 1680, 1600, 1583, 1535 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 0.90 (3H, t, J = 7.5Hz), 1.69 (2H, sextet, J = 7.5Hz), 2.08 (1H, t, J = 3Hz), 2.44 (2H, t, J = 7.5Hz), 2.45 (6H, s), 3.79 (2H, d, J = 3Hz), 5.35 (2H, s), 6.65-6.90 (2H, m), 7.0 (1H, broad d, J = 7.5Hz), 7.25 (1H, t, J = 7.5Hz), 7.71-7.93 (2H, m), 9.0 (1H, broad s)

(2) 2-Methyl-8-(2-methoxalylamino-6-methylbenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

mp : 140 to 141 °C (recrystallized from ethyl acetate and n-hexane)

IR (Nujol) : 3300, 1738, 1680, 1605, 1585, 1540 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.06 (1H, t, J = 3Hz), 2.43 (6H, s), 3.70-3.83 (2H, t, J = 3Hz), 3.75 (3H, s), 5.40 (2H, s), 6.70-6.90 (2H, m), 7.06 (1H, d, J = 8Hz), 7.30 (1H, t, J = 8Hz), 7.75-7.93

(2H, m), 9.95 (1H, br s)

| Analysis Calcd. for $C_{22}H_{21}N_3O_4$ : | | | |
|---|---|---|---|
| Found : | C 67.51,<br>C 66.97, | H 5.41,<br>H 5.18, | N 10.74<br>N 10.84 |

Example 7

To a solution of 8-(2-amino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (0.4 g) in a mixture of triethylamine (189.2 mg) and methylene chloride (9 ml) was added dropwise sulfamoyl chloride (216 mg) with ice-cooling. After being stirred for 2 hours at ambient temperature, the reaction mixture was diluted with a mixture of chloroform and methanol (95:5). The resultant organic layer was washed with a saturated aqueous solution of sodium hydrogen carbonate, and then with water. The organic layer was dried over magnesium sulfate and the solvent was evaporated under reduced pressure. The crystalline residue was recrystallized from ethanol to give 2-methyl-3-(2-propynyl)-8-(2-sulfamido-6-methylbenzyloxy)imidazo-[1,2-a]pyridine.

mp : 138 to 140 °C

IR (Nujol) : 3400, 3310, 3270, 1570, 1545 $cm^{-1}$

NMR (DMSO-$d_6$, $\delta$) : 2.33 (3H, s), 2.43 (3H, s), 2.93 (1H, t, J = 3Hz), 3.93 (2H, d, J = 3Hz), 5.38 (2H, s), 6.83-7.50 (5H, m), 7.10 (2H, s), 7.86-8.06 (1H, m), 9.06 (1H, broad s)

| Analysis Calcd. for $C_{19}H_{20}N_4O_3S$ : | | | |
|---|---|---|---|
| Found : | C 59.36,<br>C 59.96, | H 5.24,<br>H 5.30, | N 14.57<br>N 14.07 |

Example 8

To a solution of 2-methyl-3-(2-propynyl)-8-(2-pyruvamido-6-methylbenzyloxy)imidazo[1,2-a]pyridine (287 mg) in the mixture of acetic acid (0.13 ml) and ethanol (3 ml), sodium cyanoborohydride (72 mg) was added portionwise for 2.5 hours at 5 °C. The mixture was poured into a saturated aqueous solution of sodium hydrogen carbonate and extracted with chloroform. The extract was washed with water, dried over magnesium sulfate and the solvent was evaporated under reduced pressure. The residue was subjected to column chromatography on silica gel (10 g) and eluted with a mixture of chloroform and methanol (100:1) to give 8-(2-lactamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (138 mg).

mp : 186 to 188 °C (recrystallized from a mixture of ethyl acetate and n-hexane)

IR (Nujol) : 3320, 3270, 1675, 1540, 1275, 1080 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.53 (3H, d, J = 7Hz), 2.04 (1H, t, J = 3Hz), 2.42 (3H, s), 2.50 (3H, s), 3.71 (2H, d, J = 3Hz), 4.29 (1H, 4, J = 7Hz), 5.57 (2H, s), 6.43-6.80 (2H, m), 6.90 (1H, broad d, J = 8Hz), 7.17 (1H, broad t, J = 8Hz), 7.68 (1H, broad d, J = 7.5Hz), 8.25 (1H, broad d, J = 8Hz), 10.28 (1H, broad s)

Example 9

To a solution of 8-(2-t-butoxycarbonylaminoacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)-imidazo[1,2-a]pyridine (435 mg) in ethanol (2 ml) was added 25% ethanolic hydrogen chloride (0.53 ml) with ice-cooling. After being stirred for 3 hours with ice-cooling, the solvent was evaporated under reduced pressure. To the residue was added a saturated aqueous solution of sodium hydrogen carbonate and the aqueous layer was extracted with chloroform. The extract was washed with a water and dried over magnesium sulfate. The solvent was distilled off and the residue was triturated with diethyl ether to give 8-(2-aminoacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (215 mg).

mp : 180 to 183 °C

IR (Nujol) : 3300, 3120, 1690, 1605, 1540, 1280 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 1.80 (2H, broad s), 2.08 (1H, t, J-3Hz), 2.45 (6H, s), 3.45 (2H, s), 3.77 (2H, d,

J = 3Hz), 5.37 (2H, s), 6.57-6.87 (2H, m), 7.03 (1H, d, J = 8Hz), 7.28 (1H, t, J = 8Hz), 7.80 (1H, dd, J = 2Hz, 6Hz), 7.93 (1H, d, J = 8Hz), 9.90 (1H, broad s)

Example 10

To a solution of 8-(2-amino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (9.3 g) in dichloromethane (140 ml) was added dropwise benzoyl isothiocyanate and the mixture was stirred for 1 hour. The solvent was evaporated under reduced pressure and the residue was triturated with ether (50 ml) to give a crystalline product. The crystals were recrystallized from ethanol to give 8-{2-[3-(benzoyl)-thioureido]-6-methylbenzyloxy}-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (11.7 g).

mp : 159-160 °C

IR (Nujol) : 3290, 3270, 1645, 1525, 1255 $cm^{-1}$

NMR ($CDCl_3$, δ) : 2.06 (1H, t, J = 3Hz), 2.40 (3H, s), 2.49 (3H, s), 3.40 (2H, d, J = 3Hz), 5.30 (2H, s), 6.60-6.86 (2H, m), 7.13-7.90 (9H, m), 9.20 (1H, br s), 12.23 (1H, br s)

Example 11

To a solution of 8-{2-[3-(benzoyl)thioureido]-6-methylbenzyloxy}-2-methyl-3-(2-propynyl)imidazo[1,2-a]-pyridine (1.08 g) in methanol (6.5 ml) and tetrahydrofuran (19 ml) was added a solution of potassium carbonate (0.32 g) in water (6.5 ml) and the mixture was stirred at room temperature for 4 hours. The reaction mixture was diluted with water (150 ml) and then the precipitates were collected by filtration. The precipitates were recrystallized from an aqueous ethanol to give 2-methyl-8-(6-methyl-2-thioureido-benzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine (0.55 g).

mp : 155 to 153 °C

IR (Nujol) : 3460, 3340, 3300, 3150, 1600, 1545 $cm^{-1}$

NMR (DMSO-$d_6$, δ) : 2.29 (3H, s), 2.36 (3H, s), 2.96 (1H, t, J = 3Hz), 3.89 (2H, d, J = 3Hz), 5.15 (2H, s), 6.70-7.0 (2H, m), 7.06-7.53 (5H, m), 7.88 (1H, dd, J = 2, 6Hz), 9.46 (1H, s)

| Analysis Calcd. for $C_{20}H_{20}N_4OS$ : | | | |
|---|---|---|---|
| Found : | C 65.91, | H 5.53, | N 15.37 |
| | C 65.91, | H 5.48, | N 15.30 |

Example 12

The following compounds were prepared according to a similar manner to that of Example 3.

(1) 2-Methyl-8-(6-methyl-2-ureidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine
IR (Nujol) : 3380, 3270, 3240, 3170, 1660, 1590, 1540, 1090 $cm^{-1}$

(2) 8-(2-Formamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
IR (Nujol) : 3200, 1685, 1605, 1585, 1540, 1280 $cm^{-1}$

(3) 8-(2-Ethoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
IR (Nujol) : 3280, 1710, 1540 $cm^{-1}$

(4) 8-(2-Methanesulfonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
IR (Nujol) : 3275, 1540, 1323, 1145 $cm^{-1}$

(5) 8-(3-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
IR (Nujol) : 3200, 1635, 1540 $cm^{-1}$

(6) 2-Methyl-8-[6-methyl-2-(3-methylureido)benzyloxy]-3-(2-propynyl)imidazo[1,2-a]pyridine
IR (Nujol) : 3400, 3290, 1695, 1605 $cm^{-1}$

(7) 8-(5-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
IR (Nujol) : 3270, 1670, 1595, 1535, 1490 $cm^{-1}$

(8) 8-(2-t-Butoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
IR ($CHCl_3$) : 3400, 3300, 1710, 1580, 1535, 1370, 1270, 1150 $cm^{-1}$

(9) 8-(2-Acetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine
IR (Nujol) : 3340, 3270, 1683, 1603, 1585, 1280 $cm^{-1}$

(10) 2-Methyl-3-(2-propynyl)-8-(2-pyruvamido-6-methylbenzyloxy)imidazo[1,2-a]pyridine
IR (Nujol) : 3330, 3260, 1725, 1690, 1600, 1545 $cm^{-1}$

(11) 8-(2-n-Butyramido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3275, 1680, 1600, 1583, 1535 $cm^{-1}$

(12) 2-Methyl-8-(2-methoxalylamino-6-methylbenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3300, 1738, 1680, 1605, 1585, 1540 $cm^{-1}$

(13) 2-Methyl-3-(2-propynyl)-8-(2-sulfamido-6-methylbenzyloxy)imidazo[1,2-a]pyridine

IR (Nujol) : 3400, 3310, 3270, 1570, 1545 $cm^{-1}$

(14) 8-(2-Lactamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3320, 3270, 1675, 1540, 1275, 1080 $cm^{-1}$

(15) 8-(2-Aminoacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3300, 3120, 1690, 1605, 1540, 1280 $cm^{-1}$

(16) 8-{2-[3-(Benzoyl)thioureido]-6-methylbenzyloxy}-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3290, 3270, 1645, 1525, 1255 $cm^{-1}$

(17) 2-Methyl-8-(6-methyl-2-thioureidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3460, 3340, 3300, 3150, 1600, 1545 $cm^{-1}$

Example 13

The following compounds were prepared according to a similar manner to that of Example 1.

(1) 8-(2-Isonicotinamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3375, 3245, 1680, 1600, 1540, 1520 $cm^{-1}$

(2) 2-Methyl-8-(2-methyl-6-propionamidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3310, 1690, 1600, 1585, 1540 $cm^{-1}$

(3) 8-(2-t-Butoxycarbonylaminoacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]-pyridine

NMR ($CDCl_3$, $\delta$) : 1.30 (9H, s), 2.08 (1H, t, J = 3Hz), 2.47 (6H, s), 3.78 (2H, d, J = 3Hz), 4.03 (2H, d, J = 6Hz), 5.42 (2H, s), 6.70-7.40 (5H, m), 7.77-8.10 (2H, m), 9.67 (1H, broad s)

(4) 8-(2-Benzyloxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3290, 1705, 1540 $cm^{-1}$

(5) 8-(2-Isopropoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3280, 1705, 1540 $cm^{-1}$

(6) 8-(4-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3250, 1680, 1590, 1540 $cm^{-1}$

(7) 8-(2-Hydroxyacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3320, 3190, 1680, 1520, 1280 $cm^{-1}$

(8) 8-(2-Acetoxyacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

NMR (Nujol) : 3390, 3275, 1740, 1685, 1600, 1525, 1270, 1220 $cm^{-1}$

(9) 2-Methyl-3-(2-propynyl)-8-(2-pyruvamido-6-methylbenzyloxy)imidazo[1,2-a]pyridine

IR (Nujol) : 3330, 3260, 1725, 1690, 1600, 1545 $cm^{-1}$

(10) 8-(2-n-Butyramido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3275, 1680, 1600, 1583, 1535 $cm^{-1}$

(11) 2-Methyl-8-(2-methoxalylamino-6-methylbenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3300, 1738, 1680, 1605, 1585, 1540 $cm^{-1}$

(12) 2-Methyl-3-(2-propynyl)-8-(2-sulfamido-6-methylbenzyloxy)imidazo[1,2-a]pyridine

IR (Nujol) : 3400, 3310, 3270, 1570, 1545 $cm^{-1}$

(13) 8-(2-Lactamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3320, 3270, 1675, 1540, 1275, 1080 $cm^{-1}$

(14) 8-(2-Aminoacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3300, 3120, 1690, 1605, 1540, 1280 $cm^{-1}$

(15) 8-{2-[3-(Benzoyl)thioureido]-6-methylbenzyloxy}-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3290, 3270, 1645, 1525, 1255 $cm^{-1}$

(16) 2-Methyl-8-(6-methyl-2-thioureidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3460, 3340, 3300, 3150, 1600, 1545 $cm^{-1}$

Example 14

The following compounds were prepared according to a similar manner to that of Example 5.

(1) 2-Methyl-8-(6-methyl-2-ureidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3380, 3270, 3240, 3170, 1660, 1590, 1540, 1090 $cm^{-1}$

(2) 8-(2-Formamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3200, 1685, 1605, 1585, 1540, 1280 $cm^{-1}$

(3) 8-(2-Ethoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3280, 1710, 1540 $cm^{-1}$

(4) 8-(2-Methanesulfonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3275, 1540, 1323, 1145 $cm^{-1}$

(5) 8-(3-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3200, 1635, 1540 $cm^{-1}$

(6) 2-Methyl-8-[6-methyl-2-(3-methylureido)benzyloxy]-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3400, 3290, 1695, 1605 $cm^{-1}$

(7) 8-(2-Methoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3300, 1710, 1535, 1360, 1275, 1255 $cm^{-1}$

(8) 8-(5-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3270, 1670, 1595, 1535, 1400 $cm^{-1}$

(9) 8-(2-t-Butoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR ($CHCl_3$) : 3400, 3300, 1710, 1580, 1535, 1370, 1270, 1150 $cm^{-1}$

(10) 8-(2-Acetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3340, 3270, 1683, 1603, 1585, 1280 $cm^{-1}$

(11) 8-(2-Isonicotinamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3375, 3245, 1680, 1600, 1540, 1520 $cm^{-1}$

(12) 2-Methyl-8-(2-methyl-6-propionamidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3310, 1690, 1600, 1585, 1540 $cm^{-1}$

(13) 8-(2-t-Butoxycarbonylaminoacetamido-6-methyl benzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]-pyridine

NMR ($CDCl_3$, $\delta$) : 1.30 (9H, s), 2.08 (1H, t, J = 3Hz), 2.47 (6H, s), 3.78 (2H, d, J = 3Hz), 4.03 (2H, d, J = 6Hz), 5.42 (2H, s), 6.70-7.40 (5H, m), 7.77-8.10 (2H, m), 9.67 (1H, broad s)

(14) 8-(2-Benzyloxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3290, 1705, 1540 $cm^{-1}$

(15) 8-(2-Isopropoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3280, 1705, 1540 $cm^{-1}$

(16) 8-(4-Acetamido-2-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3250, 1680, 1590, 1540 $cm^{-1}$

(17) 8-(2-Hydroxyacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3320, 3190, 1680, 1520, 1280 $cm^{-1}$

(18) 8-(2-Acetoxyacetamido-6-methylbenzyloxy-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3390, 3275, 1740, 1685, 1600, 1525, 1270, 1220 $cm^{-1}$

(19) 8-(2-Lactamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3320, 3270, 1675, 1540, 1275, 1080 $cm^{-1}$

(20) 8-(2-Aminoacetamido-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3300, 3120, 1690, 1605, 1540, 1280 $cm^{-1}$

(21) 8-{2-(3-Benzoylthioureido)-6-methylbenzyloxy}-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3290, 3270, 1645, 1525, 1255 $cm^{-1}$

(22) 2-Methyl-8-(6-methyl-2-thioureidobenzyloxy)-3-(2-propynyl)imidazo[1,2-a]pyridine

IR (Nujol) : 3460, 3340, 3300, 3150, 1600, 1545 $cm^{-1}$

Example 15

A mixture of 8-hydroxy-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (0.372 g) and potassium carbonate (0.276 g) in N,N-dimethylformamide (7.4 ml) was stirred at room temperature for 20 minutes under a nitrogen atmosphere and then 2-methoxycarbonylamino-6-methylbenzylchloride (0.427 g) was added. After being stirred for 2 hours, the mixture was poured into water and the resulting precipitates were collected by filtration. The crude product was purified by column chromatography on silica gel (10 g) with chloroform as eluents to give 8-(2-methoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]-pyridine (0.048 g).

mp : 180 to 181 °C (recrystallized from a mixture of ethyl acetate and cyclohexane)

IR (Nujol) : 3300, 1710, 1535, 1360, 1275, 1255 $cm^{-1}$

NMR ($CDCl_3$, $\delta$) : 2.06 (1H, t, J = 3Hz), 2.48 (6H, s), 3.73 (3H, s), 3.75 (2H, d, J = 3Hz), 5.35 (2H, s), 6.53-6.80 (2H, m), 6.90 (1H, d, J = 7.5Hz), 7.18 (1H, t, J = 7.5Hz), 7.50-7.80 (2H, m), 9.17 (1H, broad s)

Example 16

8-(2-Methoxycarbonylamino-6-methylbenzyloxy)-2-methyl-3-(2-propynyl)imidazo[1,2-a]pyridine (Compound 1) prepared by Example 3, 14-(7) or 15 can be obtained as A-form as B-form according to the following methods.

(1) Compound 1 (50.0 g) was dissolved in ethanol (1,500 ml) under reflux and the hot solution was poured into water (1,500 ml). The precipitate formed was collected by filtration, washed with ethanol and dried under vacuum to give the crystals of A-form (47.4 g).

IR (Nujol) : 3300, 1710, 1535, 1360, 1275, 1255 $cm^{-1}$

X-ray powder diffraction : $2\theta = 8.8°$

Similarly, the crystals of A-form could be obtained by recrystallization of Compound 1 from the following solvents :

Solvents

ethyl acetate-cyclohexane, tetrahydrofuran-water, isopropylalcohol-water, ethyl acetate-heptane

(2) Compound 1 (50.0 g) was dissolved in ethyl acetate (850 ml) under reflux and cooled at 10 °C. The precipitate formed was collected by filtration, washed with ethyl acetate, and dried under vacuum to give the crystals of B-form (43.2 g).

IR (Nujol) : 3300, 1710, 1535, 1360, 1275, 1255, 1245 $cm^{-1}$

X-ray powder diffraction : $2\theta = 9.2°$

Similarly, the crystals of B-form could be obtained by recrystallization of Compound 1 from the following solvents :

Solvents

tetrahydrofuran, acetonitrile, methylene chloride, methyl ethyl ketone, methyl isobutyl ketone, tetrahydrofuran-heptane, acetonitrile-heptane

(3) Compound 1 (5.0 g) was dissolved in ethanol (75 ml) under reflux and allowed to stand. After an hour, the solution was cooled at 10 °C. The precipitate formed was collected by filtration, washed with ethanol, and dried under vacuum to give the crystals of the mixture of A-form and B-form (4.62 g).

Similarly, the crystals of the mixture of A-form and B-form could be obtained by recrystallization of Compound 1 from the following solvent :

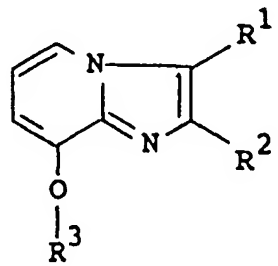
Solvent

ethanol-cyclohexane

## Claims

**Claims for the following Contracting States : AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE**

**1.** An imidazopyridine compound of the formula :



wherein

$R^1$ is $C_2$-$C_6$ alkynyl,

$R^2$ is $C_1$-$C_6$ alkyl, and

$R^3$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from $C_1$-$C_6$ alkanoylamino, $C_1$-$C_6$ alkanesulfonylamino, $C_1$-$C_6$ alkoxycarbonylamino, isonicotinamido, ureido, ureido having $C_1$-$C_6$ alkyl, $C_1$-$C_6$ alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, phenyl($C_1$-$C_6$)alkoxycarbonylamino, 3-benzoylthioureido, thioureido, $C_1$-$C_6$ alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$ alkanoylcarbonylamino, $C_1$-$C_6$ alkoxycarbonylcarbonylamino, sulfamido, $C_1$-$C_6$ alkanoylamino having hydroxy and amino($C_1$-$C_6$)alkanoylamino,

and a pharmaceutically acceptable salt thereof.

2. A compound of claim 1, wherein

$R^1$ is propynyl,

$R^2$ is methyl, and

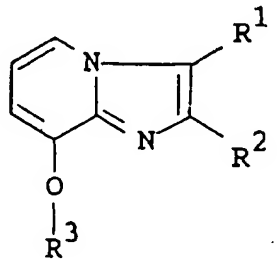
$R^3$ is benzyl substituted by methyl and one additional substituent selected from formamido, acetamido, propionamido, n-butyramido, methanesulfonylamino, methoxycarbonylamino, ethoxycarbonylamino, iso-propoxycarbonylamino, tert-butoxycarbonylamino, isonicotinamido, ureido, methylureido, tert-butoxycarbonylaminoacetamido, benzyloxycarbonylamino, 3-benzoylthioureido, thioureido hydroxyacetamido, acetoxyacetamido, pyruvamido, methoxalylamino, sulfamido, lactamido and aminoacetamido.

3. A compound of claim 2, wherein

$R^1$ is 2-propynyl, and

$R^3$ is 2-formamido-6-methylbenzyl, 2-acetamido-6-methylbenzyl, 3-acetamido-2-methylbenzyl, 4-acetamido-2-methylbenzyl, 5-acetamido-2-methylbenzyl, 2-methyl-6-propionamidobenzyl, 2-n-butyramido-6-methylbenzyl, 2-methanesulfonylamino-6-methylbenzyl, 2-methoxycarbonylamino-6-methylbenzyl, 2-ethoxycarbonylamino-6-methylbenzyl, 2-iso-propoxycarbonylamino-6-methylbenzyl, 2-methyl-6-tert-butoxycarbonylaminobenzyl, 2-isonicotinamido-6-methylbenzyl, 2-methyl-6-ureidobenzyl, 2-methyl-6-(3-methylureido)benzyl, 2-methyl-6-tert-butoxycarbonylaminoacetamidobenzyl, 2-benzyloxycarbonylamino-6-methylbenzyl, 2-(3-benzoylthioureido)-6-methylbenzyl, 2-methyl-6-thioureidobenzyl, 2-hydroxyacetamido-6-methylbenzyl, 2-acetoxyacetamido-6-methylbenzyl, 2-methyl-6-pyruvamidobenzyl, 2-methoxalylamino-6-methylbenzyl, 2-methyl-6-sulfamidobenzyl, 2-lactamido-6-methylbenzyl, 2-aminoacetamido-6-methylbenzyl.

4. A process for preparing imidazopyridine compounds of the formula :



wherein

$R^1$ is $C_2$-$C_6$ alkynyl,

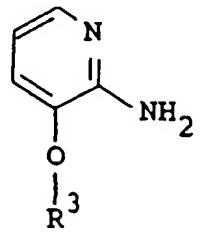
$R^2$ is $C_1$-$C_6$ alkyl, and

$R^3$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from $C_1$-$C_6$ alkanoylamino, $C_1$-$C_6$ alkanesulfonylamino, $C_1$-$C_6$ alkoxycarbonylamino, isonicotinamido, ureido, ureido having $C_1$-$C_6$ alkyl, $C_1$-$C_6$ alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, phenyl($C_1$-$C_6$)alkoxycarbonylamino, 3-benzoylthioureido, thioureido, $C_1$-$C_6$ alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$ alkanoylcarbonylamino, $C_1$-$C_6$ alkoxycarbonylcarbonylamino, sulfamido, $C_1$-$C_6$ alkanoylamino having hydroxy and amino($C_1$-$C_6$)alkanoylamino,

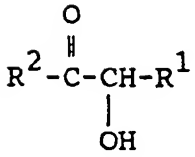
or a salt thereof,

which comprises

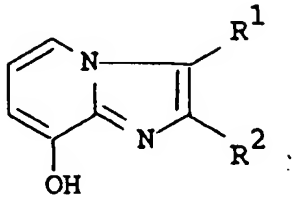
(1) reacting a compound of the formula :



wherein $R^3$ is as defined above,
or a salt thereof,
with a compound of the formula :



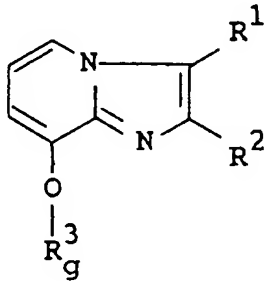
wherein $R^1$ and $R^2$ are each as defined above,
or its reactive derivative at the hydroxy group, or
(2) reacting a compound of the formula :



wherein $R^1$ and $R^2$ are each as defined above,
or a salt thereof,
with a compound of the formula :

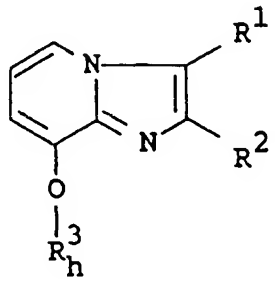
$R^3$ - OH

wherein $R^3$ is as defined above,
or its reactive derivative at the hydroxy group, or
(3) subjecting a compound of the formula :

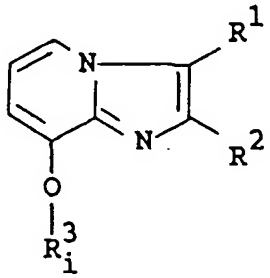


wherein
$R^1$ and $R^2$ are each as defined above, and

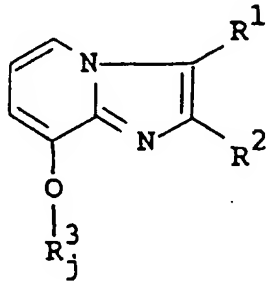
$R^3_g$ is benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanoylcarbonylamino,
or a salt thereof, to reduction reaction,
to give a compound of the formula :



wherein
$R^1$ and $R^2$ are each as defined above, and
$R^3_h$ is benzyl substituted by $C_1$-$C_6$ alkyl and α-hydroxy($C_1$-$C_6$)alkanoylamino,
or a salt thereof,
or
(4) subjecting a compound of the formula :



wherein
$R^1$ and $R^2$ are each as defined above, and
$R^3_i$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substitutent selected from $C_1$-$C_6$ alkoxycarbonylamino(lower)alkanoylamino and 3-benzoyl thioureido,
or a salt thereof, to elimination reaction of the amino protective group to give a compound of the formula :



wherein
$R^1$ and $R^2$ are each as defined above, and
$R^3_j$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from amino($C_1$-$C_6$)alkanoylamino and thioureido,

or a salt thereof.

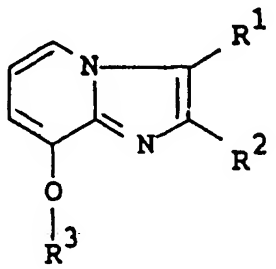
5. A pharmaceutical composition which comprises, as an active ingredient, a compound of claim 1 or a pharmaceutically acceptable salt thereof in admixture with pharmaceutically acceptable carriers.

6. A compound of claim 1 or a pharmaceutically acceptable salt thereof for use as a medicament.

7. A compound of claim 1 or pharmaceutically acceptable salt thereof for the use as a medicament for treating ulcer.

**Claim for the following Contracting State : ES**

1. A process for preparing imidazopyridine compounds of the formula :



wherein

$R^1$ is $C_2$-$C_6$ alkynyl,

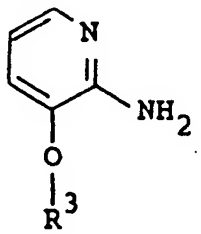
$R^2$ is $C_1$-$C_6$ alkyl, and

$R^3$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from $C_1$-$C_6$ alkanoylamino, $C_1$-$C_6$ alkanesulfonylamino, $C_1$-$C_6$ alkoxycarbonylamino, isonicotinamido, ureido, ureido having $C_1$-$C_6$ alkyl, $C_1$-$C_6$ alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, phenyl($C_1$-$C_6$)alkoxycarbonylamino, 3-benzoylthioureido, thioureido, $C_1$-$C_6$ alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$ alkanoylcarbonylamino, $C_1$-$C_6$ alkoxycarbonylcarbonylamino, sulfamido, $C_1$-$C_6$ alkanoylamino having hydroxy and amino($C_1$-$C_6$)alkanoylamino,

or a salt thereof,

which comprises

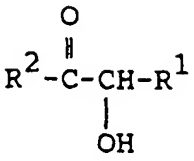
(1) reacting a compound of the formula :



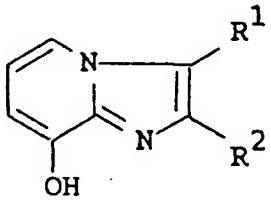
wherein $R^3$ is as defined above,

or a salt thereof,

with a compound of the formula :



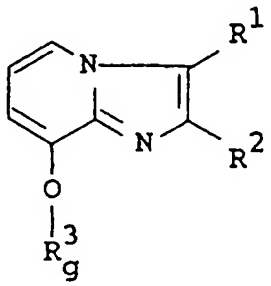
wherein $R^1$ and $R^2$ are each as defined above,
or its reactive derivative at the hydroxy group, or
(2) reacting a compound of the formula :



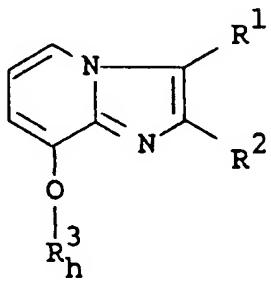
wherein $R^1$ and $R^2$ are each as defined above,
or a salt thereof,
with a compound of the formula :

$R^3$ - OH

wherein $R^3$ is as defined above,
or its reactive derivative at the hydroxy group, or
(3) subjecting a compound of the formula :



wherein
$R^1$ and $R^2$ are each as defined above, and
$R^3_g$ is benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanoylcarbonylamino,
or a salt thereof, to reduction reaction,
to give a compound of the formula :



wherein

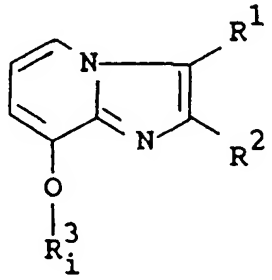
$R^1$ and $R^2$ are each as defined above, and

$R^3_h$ is benzyl substituted by $C_1$-$C_6$ alkyl and $\alpha$-hydroxy($C_1$-$C_6$)alkanoylamino,

or a salt thereof,

or

(4) subjecting a compound of the formula :

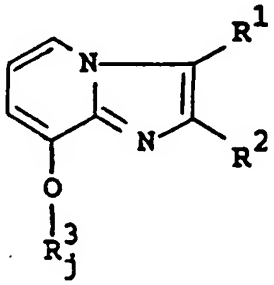


wherein

$R^1$ and $R^2$ are each as defined above, and

$R^3_i$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substitutent selected from $C_1$-$C_6$ alkoxycarbonylamino(lower)alkanoylamino and 3-benzoyl thioureido,

or a salt thereof, to elimination reaction of the amino protective group to give a compound of the formula :



wherein

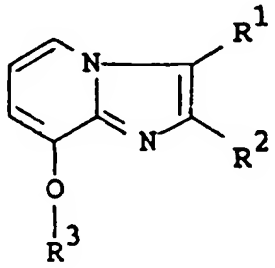
$R^1$ and $R^2$ are each as defined above, and

$R^3_j$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from amino($C_1$-$C_6$)alkanoylamino and thioureido,

or a salt thereof.

**Claims for the following Contracting State : GR**

1. A process for preparing imidazopyridine compounds of the formula :



wherein

$R^1$ is $C_2$-$C_6$ alkynyl,

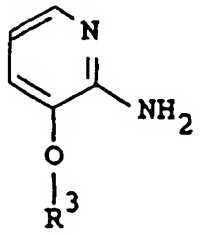
$R^2$ is $C_1$-$C_6$ alkyl, and

$R^3$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from $C_1$-$C_6$ alkanoylamino, $C_1$-$C_6$ alkanesulfonylamino, $C_1$-$C_6$ alkoxycarbonylamino, isonicotinamido, ureido, ureido having $C_1$-$C_6$ alkyl, $C_1$-$C_6$ alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, phenyl($C_1$-$C_6$)alkoxycarbonylamino, 3-benzoylthioureido, thioureido, $C_1$-$C_6$ alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$ alkanoylcarbonylamino, $C_1$-$C_6$ alkoxycarbonylcarbonylamino, sulfamido, $C_1$-$C_6$ alkanoylamino having hydroxy and amino($C_1$-$C_6$)alkanoylamino,

or a salt thereof,

which comprises

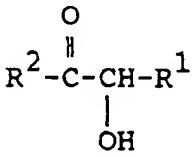
(1) reacting a compound of the formula :



wherein $R^3$ is as defined above,

or a salt thereof,

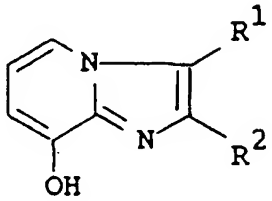
with a compound of the formula :



wherein $R^1$ and $R^2$ are each as defined above,

or its reactive derivative at the hydroxy group, or

(2) reacting a compound of the formula :



wherein $R^1$ and $R^2$ are each as defined above,

or a salt thereof,

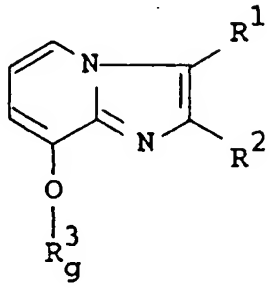
with a compound of the formula :

$R^3$ - OH

wherein $R^3$ is as defined above,

or its reactive derivative at the hydroxy group, or

(3) subjecting a compound of the formula :



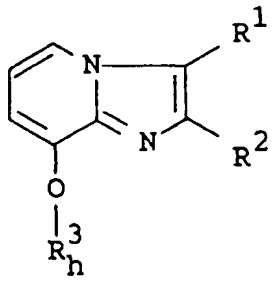
wherein

$R^1$ and $R^2$ are each as defined above, and

$R^3_g$ is benzyl substituted by $C_1$-$C_6$ alkyl and $C_1$-$C_6$ alkanoylcarbonylamino,

or a salt thereof, to reduction reaction,

to give a compound of the formula :



wherein

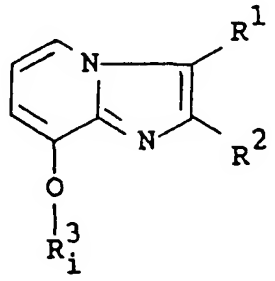
$R^1$ and $R^2$ are each as defined above, and

$R^3_h$ is benzyl substituted by $C_1$-$C_6$ alkyl and $\alpha$-hydroxy($C_1$-$C_6$)alkanoylamino,

or a salt thereof,

or

(4) subjecting a compound of the formula :

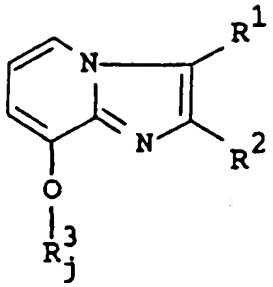


wherein

$R^1$ and $R^2$ are each as defined above, and

$R^3_i$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substitutent selected from $C_1$-$C_6$ alkoxycarbonylamino(lower)alkanoylamino and 3-benzoyl thioureido,

or a salt thereof, to elimination reaction of the amino protective group to give a compound of the formula :



wherein

$R^1$ and $R^2$ are each as defined above, and

$R^3_j$ is benzyl substituted by $C_1$-$C_6$ alkyl and one additional substituent selected from amino($C_1$-$C_6$)alkanoylamino and thioureido,

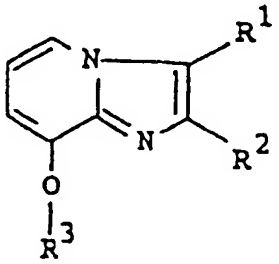
or a salt thereof.

2. Modification of the process claimed in claim 1 which is characterized by bringing a compound, prepared by a process of claim 1, into pharmaceutically acceptable form by admixture or presentation of said compound with a pharmaceutically acceptable diluent or carrier.

**Revendications**

**Revendications pour les Etats contractants suivants : AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE**

1. Imidazopyridine répondant à la formule :



dans laquelle

$R^1$ est un groupe alcynyle en $C_2$ à $C_6$,

$R^2$ est un groupe alkyle en $C_1$ à $C_6$, et

$R^3$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe alcanoylamino en $C_1$ à $C_6$, alcanesulfonylamino en $C_1$ à $C_6$, (alcoxy en $C_1$ à $C_6$)carbonylamino, isonicotinamido, uréido, uréido ayant un groupe alkyle en $C_1$ à $C_6$ (alcoxy en $C_1$ à $C_6$)carbonylamino(alcanoylamino en $C_1$ à $C_6$), phényl(alcoxy en $C_1$ à $C_6$)carbonylamino, 3-benzoylthiouréido, thiouréido, (alcanoyloxy en $C_1$ à $C_6$) (alcanoylamino en $C_1$ à $C_6$), (alcanoyle en $C_1$ à $C_6$)carbonylamino, (alcoxy en $C_1$ à $C_6$)carbonylcarbonylamino, sulfamido, alcanoylamino en $C_1$ à $C_6$ ayant un groupe hydroxy et amino(alcanoylamino en $C_1$ à $C_6$)

et ses sels pharmaceutiquement acceptables.

2. Composé selon la revendication 1, dans lequel

$R^1$ est un groupe propynyle,

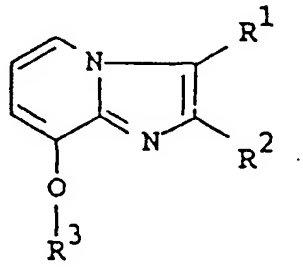
$R^2$ est un groupe méthyle, et

$R^3$ est un groupe benzyle substitué par un groupe méthyle et par un substituant supplémentaire choisi parmi les groupes formamido, acétamido, propionamido, n-butyramido, méthanesulfonylamino, méthoxycarbonylamino, éthoxycarbonylamino, isopropoxycarbonylamino, tert-butoxycarbonylamino, isonicotinamido, uréido, méthyluréido, tert-butoxycarbonylaminoacétamido, benzyloxycarbonylamino, 3-benzoylthiouréido, thiouréido, hydroxyacétamido, acétoxyacé-

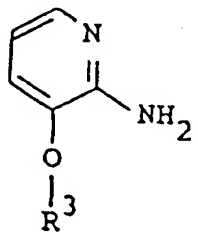
tamido, pyruvamido, méthoxalylamino, sulfamido, lactamido et aminoacétamido.

3. Composé selon la revendication 2, dans lequel :
   $R^1$ est un groupe 2-propynyle, et
   $R^3$ est un groupe 2-formamido-6-méthylbenzyle, 2-acétamido-6-méthylbenzyle, 3-acétamido-2-méthylbenzyle, 4-acétamido-2-méthylbenzyle, 5-acétamido-2-méthylbenzyle, 2-méthyl-6-propionamidobenzyle, 2-n-butyramido-6-méthylbenzyle, 2-méthanesulfonylamino-6-méthylbenzyle, 2-méthoxycarbonylamino-6-méthylbenzyle, 2-éthoxycarbonylamino-6-méthylbenzyle, 2-isopropoxycarbonylamino-6-méthylbenzyle, 2-méthyl-6-tert-butoxycarbonylamniobenzyle, 2-isonicotinamido-6-méthylbenzyle, 2-méthyl-6-uréidobenzyle, 2-méthyl-6-(3-méthyluréido)-benzyle, 2-méthyl-6-tert-butoxycarbonylaminoacétamidobenzyle, 2-benzyloxycarbonylamino-6-méthylbenzyle, 2-(3-benzoylthiouréido)-6-méthylbenzyle, 2-méthyl-6-thiouréidobenzyle, 2-hydroxyacétamido-6-méthylbenzyle, 2-acétoxyacétamido-6-méthylbenzyle, 2-méthyl-6-pyruvamidobenzyle, 2-méthoxalylamino-6-méthylbenzyle, 2-méthyl-6-sulfamidobenzyle, 2-lactamido-6-méthylbenzyle, 2-aminoacétamido-6-méthylbenzyle.

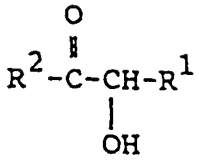
4. Procédé de préparation d'imidazopyridines répondant à la formule :



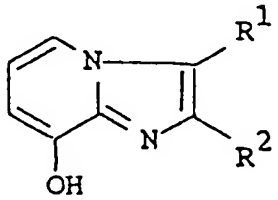
dans laquelle
   $R^1$ est un groupe alcynyle en $C_2$ à $C_6$,
   $R^2$ est un groupe alkyle en $C_1$ à $C_6$, et
   $R^3$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe alcanoylamino en $C_1$ à $C_6$, alcanesulfonylamino en $C_1$ à $C_6$, (alcoxy en $C_1$ à $C_6$)carbonylamino, isonicotinamido, uréido, uréido ayant un groupe alkyle en $C_1$ à $C_6$, (alcoxy en $C_1$ à $C_6$)carbonylamino(alcanoylamino en $C_1$ à $C_6$), phényl(alcoxy en $C_1$ à $C_6$)carbonylamino, 3-benzoylthiouréido, thiouréido, (alcanoyloxy en $C_1$ à $C_6$) (alcanoylamino en $C_1$ à $C_6$), (alcanoyle en $C_1$ à $C_6$)carbonylamino, (alcoxy en $C_1$ à $C_6$)carbonylcarbonylamino, sulfamido, alcanoylamino en $C_1$ à $C_6$ ayant un groupe hydroxy et amino(alcanoylamino en $C_1$ à $C_6$),
ou leurs sels, qui comprend
(1) le fait de faire réagir un composé répondant à la formule :



dans laquelle $R^3$ est tel que défini ci-dessus,
ou un de ses sels,
avec un composé répondant à la formule :



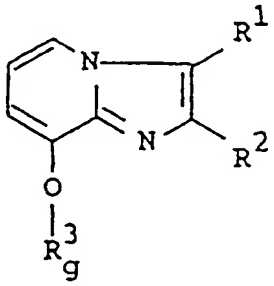
dans laquelle $R^1$ et $R^2$ sont chacun tels que définis ci-dessus,
ou un de ses dérivés réactifs sur le groupe hydroxy, ou
(2) le fait de faire réagir un composé répondant à la formule :



dans laquelle $R^1$ et $R^2$ sont chacun tels que définis ci-dessus,
ou un de ses sels,
avec un composé répondant à la formule :

$R^3$ - OH

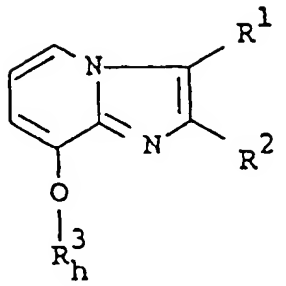
dans laquelle $R^3$ est tel que défini ci-dessus,
ou un de ses dérivés réactifs sur le groupe hydroxy,
ou
(3) le fait de soumettre un composé répondant à la formule :



dans laquelle

| | |
|---|---|
| $R^1$ et $R^2$ | sont chacun tels que définis ci-dessus, et |
| $R^3_g$ | est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et un groupe (alcanoyle en $C_1$ à $C_6$)carbonylamino, |

ou un de ses sels, à une réaction de réduction,
pour donner un composé répondant à la formule :



dans laquelle

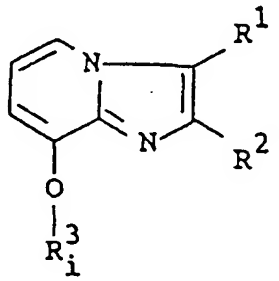
$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R^3_h$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et un groupe α-hydroxy(alcanoylamino en $C_1$ à $C_6$)

ou un de ses sels,

ou

(4) le fait de soumettre un composé répondant à la formule :

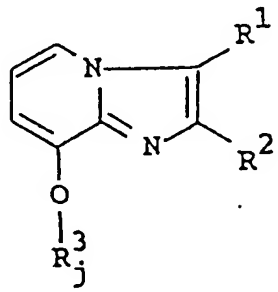


dans laquelle

$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R^3_i$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe (alcoxy en $C_1$ à $C_6$) carbonylamino(alcanoylamino inférieur) et 3-benzoylthiouréido,

ou un de ses sels, à une réaction d'élimination du groupe protecteur du groupe amino pour donner un composé répondant à la formule :



dans laquelle

$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R^3_j$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe amino(alcanoylamino en $C_1$ à

$C_6$) et thiouréido,
ou un de ses sels.

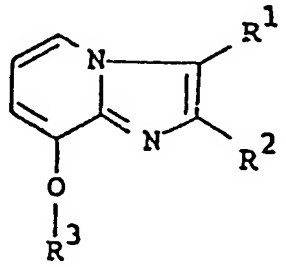
5. Composition pharmaceutique qui comprend comme ingrédient actif un composé selon la revendication 1 ou un de ses sels pharmaceutiquement acceptables en mélange avec des supports pharmaceutiquement acceptables.

6. Composé selon la revendication 1 ou un de ses sels pharmaceutiquement acceptables pour l'utilisation comme médicament.

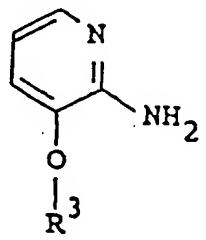
7. Composé selon la revendication 1 ou un de ses sels pharmaceutiquement acceptables pour l'utilisation comme médicament pour le traitement des ulcères.

**Revendication pour l'Etat contractant suivant : ES**

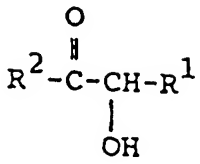
1. Procédé de préparation d'imidazopyridines répondant à la formule :



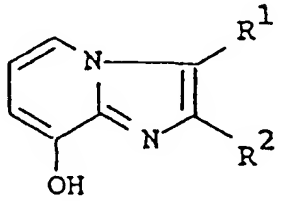
dans laquelle
$R^1$ est un groupe alcynyle en $C_2$ à $C_6$,
$R^2$ est un groupe alkyle en $C_1$ à $C_6$, et
$R^3$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe alcanoylamino en $C_1$ à $C_6$, alcanesulfonylamino en $C_1$ à $C_6$, (alcoxy en $C_1$ à $C_6$)carbonylamino, isonicotinamido, uréido, uréido ayant un groupe alkyle en $C_1$ à $C_6$ (alcoxy en $C_1$ à $C_6$)carbonylamino(alcanoylamino en $C_1$ à $C_6$), phényl(alcoxy en $C_1$ à $C_6$)carbonyl-amino, 3-benzoylthiouréido, thiouréido, (alcanoyloxy en $C_1$ à $C_6$) (alcanoylamino en $C_1$ à $C_6$), (alcanoyle en $C_1$ à $C_6$)carbonylamino, (alcoxy en $C_1$ à $C_6$)carbonylcarbonylamino, sulfamido, alcanoylamino en $C_1$ à $C_6$ ayant un groupe hydroxy et amino(alcanoylamino en $C_1$ à $C_6$),
ou de leurs sels,
qui comprend
(1) le fait de faire réagir un composé répondant à la formule :



dans laquelle $R^3$ est tel que défini ci-dessus,
ou un de ses sels,
avec un composé répondant à la formule :



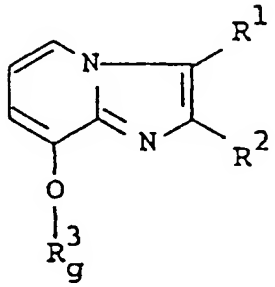
dans laquelle $R^1$ et $R^2$ sont chacun tels que définis ci-dessus,
ou un de ses dérivés réactifs sur le groupe hydroxy, ou
(2) le fait de faire réagir un composé répondant à la formule :



dans laquelle $R^1$ et $R^2$ sont chacun tels que définis ci-dessus,
ou un de ses sels,
avec un composé répondant à la formule :

$R^3$ - OH

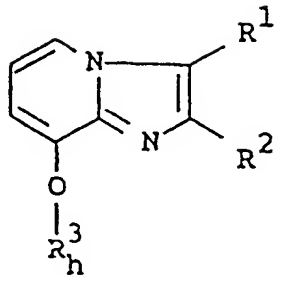
dans laquelle $R^3$ est tel que défini ci-dessus,
ou un de ses dérivés réactifs sur le groupe hydroxy,
ou
(3) le fait de soumettre un composé répondant à la formule :



dans laquelle

| | |
|---|---|
| $R^1$ et $R^2$ | sont chacun tels que définis ci-dessus, et |
| $R^3_g$ | est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et un groupe (alcanoyle en $C_1$ à $C_6$)carbonylamino, |

ou un de ses sels, à une réaction de réduction,
pour donner un composé répondant à la formule :



dans laquelle

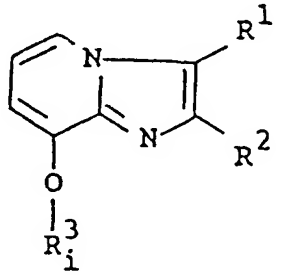
$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R_h^3$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et un groupe α-hydroxy(alcanoylamino en $C_1$ à $C_6$)

ou un de ses sels,

ou

(4) le fait de soumettre un composé répondant à la formule :

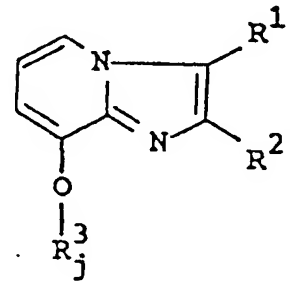


dans laquelle

$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R_i^3$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe (alcoxy en $C_1$ à $C_6$) carbonylamino(alcanoylamino inférieur) et 3-benzoylthiouréido,

ou un de ses sels, à une réaction d'élimination du groupe protecteur du groupe amino pour donner un composé répondant à la formule :



dans laquelle

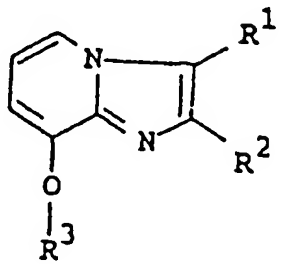
$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R_j^3$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe amino(alcanoylamino en $C_1$ à $C_6$) et thiouréido,

ou un de ses sels.

**Revendications pour l'Etat contractant suivant : GR**

1. Procédé de préparation d'imidazopyridines répondant à la formule :



dans laquelle

$R^1$ est un groupe alcynyle en $C_2$ à $C_6$,

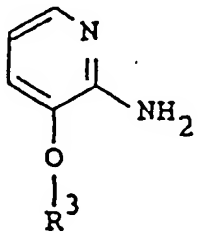
$R^2$ est un groupe alkyle en $C_1$ à $C_6$, et

$R^3$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe alcanoylamino en $C_1$ à $C_6$, alcanesulfonylamino en $C_1$ à $C_6$, (alcoxy en $C_1$ à $C_6$)carbonylamino, isonicotinamido, uréido, uréido ayant un groupe alkyle en $C_1$ à $C_6$ (alcoxy en $C_1$ à $C_6$)carbonylamino(alcanoylamino en $C_1$ à $C_6$), phényl(alcoxy en $C_1$ à $C_6$)carbonylamino, 3-benzoylthiouréido, thiouréido, (alcanoyloxy en $C_1$ à $C_6$) (alcanoylamino en $C_1$ à $C_6$), (alcanoyle en $C_1$ à $C_6$)carbonylamino, (alcoxy en $C_1$ à $C_6$)carbonylcarbonylamino, sulfamido, alcanoylamino en $C_1$ à $C_6$ ayant un groupe hydroxy et amino(alcanoylamino en $C_1$ à $C_6$)

ou de leurs sels,

qui comprend

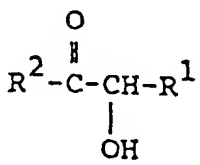
(1) le fait de faire réagir un composé répondant à la formule :



dans laquelle $R^3$ est tel que défini ci-dessus,

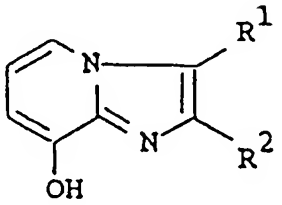
ou un de ses sels,

avec un composé répondant à la formule :



dans laquelle $R^1$ et $R^2$ sont chacun tels que définis ci-dessus,

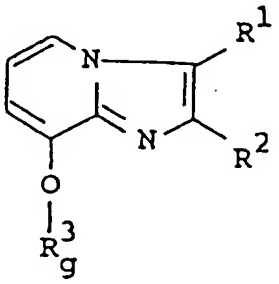
ou un de ses dérivés réactifs sur le groupe hydroxy, ou
(2) le fait de faire réagir un composé répondant à la formule :



dans laquelle $R^1$ et $R^2$ sont chacun tels que définis ci-dessus,
ou un de ses sels,
avec un composé répondant à la formule :

$R^3$ - OH

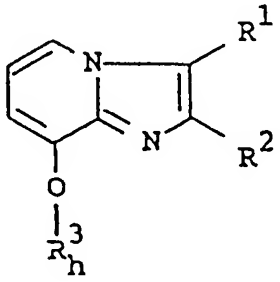
dans laquelle $R^3$ est tel que défini ci-dessus,
ou un de ses dérivés réactifs sur le groupe hydroxy,
ou
(3) le fait de soumettre un composé répondant à la formule :



dans laquelle

| | |
|---|---|
| $R^1$ et $R^2$ | sont chacun tels que définis ci-dessus, et |
| $R^3_g$ | est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et un groupe (alcanoyle en $C_1$ à $C_6$)carbonylamino, |

ou un de ses sels, à une réaction de réduction,
pour donner un composé répondant à la formule :



dans laquelle

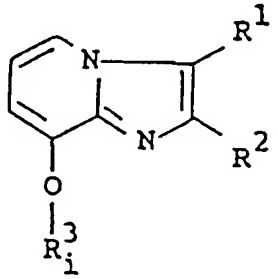
$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R^3_h$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et un groupe α-hydroxy(alcanoylamino en $C_1$ à $C_6$)

ou un de ses sels,

ou

(4) le fait de soumettre un composé répondant à la formule :

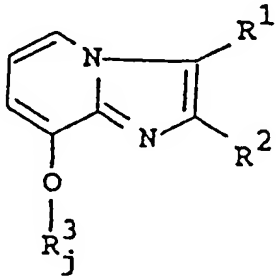


dans laquelle

$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R^3_i$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ et par un substituant supplémentaire choisi parmi un groupe (alcoxy en $C_1$ à $C_6$) carbonylamino(alcanoylamino inférieur) et 3-benzoylthiouréido,

ou un de ses sels, à une réaction d'élimination du groupe protecteur du groupe amino pour donner un composé répondant à la formule :



dans laquelle

$R^1$ et $R^2$ sont chacun tels que définis ci-dessus, et

$R^3_j$ est un groupe benzyle substitué par un groupe alkyle en $C_1$ à $C_6$ en par un substituant supplémentaire choisi parmi un groupe amino(alcanoylamino en $C_1$ à $C_6$) et thiouréido,

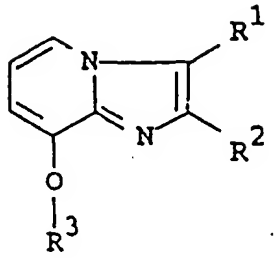
ou un de ses sels.

2. Variante du procédé selon la revendication 1, caractérisée en ce qu'on amène un composé préparé par le procédé selon la revendication 1 sous une forme pharmaceutiquement acceptable par mélange ou présentation de ce composé avec un diluant ou support pharmaceutiquement acceptable.

**Patentansprüche**

**Patentansprüche für folgende Vertragsstaaten : AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE**

1. Imidazopyridinverbindung der Formel

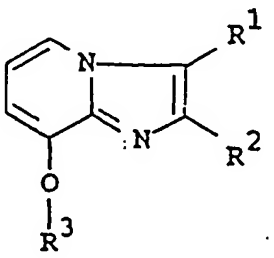


worin
$R^1$ die Bedeutung $C_2$-$C_6$-Alkinyl hat,
$R^2$ ist $C_1$-$C_6$-Alkyl und
$R^3$ ist Benzyl, substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter $C_1$-$C_6$-Alkanoylamino, $C_1$-$C_6$-Alkansulfonylamino, $C_1$-$C_6$-Alkoxycarbonylamino, Isonicotinamido, Ureido, Ureido mit $C_1$-$C_6$-Alkyl, $C_1$-$C_6$-Alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, Phenyl($C_1$-$C_6$)-alkoxycarbonylamino, 3-Benzoylthioureido, Thioureido, $C_1$-$C_6$-Alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$-Alkanoylcarbonylamino, $C_1$-$C_6$-Alkoxycarbonylcarbonylamino, Sulfamido, $C_1$-$C_6$-Alkanoylamino mit Hydroxy, und Amino($C_1$-$C_6$)alkanoylamin,
und ein pharmazeutisch annehmbares Salz davon.

2. Verbindung nach Anspruch 1, worin
$R^1$ Propinyl ist,
$R^2$ ist Methyl und
$R^3$ ist Benzyl, substituiert durch Methyl und einen zusätzlichen Substituenten, ausgewählt unter Formamido, Acetamido,Propionamido, n-Butyramido, Methansulfonylamino, Methoxycarbonylamino, Ethoxycarbonylamino, iso-Propoxycarbonylamino, tert.-Butoxycarbonylamino, Isonicotinamido, Ureido, Methylureido, tert.-Butoxycarbonylaminoacetamido, Benzyloxycarbonylamino, 3-Benzoylthioureido, Thioureidohydroxyacetamido, Acetoxyacetamido, Pyruvamido, Methoxalylamino, Sulfamido, Lactamido und Aminoacetamido.

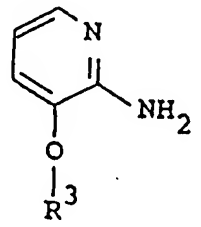
3. Verbindung nach Anspruch 2, worin
$R^1$ 2-Propinyl ist, und
$R^3$ ist 2-Formamido-6-methylebnzyl, 2-Acetamido-6-methylbenzyl, 3-Acetamido-2-methylbenzyl, 3-Acetamido-2-methylbenzyl, 4-Acetamido-2-methylbenzyl, 5-Acetamido-2-methylbenzyl, 2-Methyl-6-propionamidobenzyl, 2-n-Butyramido-6-methylbenzyl, 2-Methansulfonylamino-6-methylbenzyl, 2-Methoxycarbonylamino-6-methylbenzyl, 2-Ethoxycarbonylamino-6-methylbenzyl, 2-iso-Propoxycarbonylamino-6-methylbenzyl, 2-Methyl-6-tert.-butoxycarbonylaminobenzyl, 2-Isnicotinamido-6-methylbenzyl, 2-Methyl-6-ureidobenzyl, 2-Methyl-6-(3-methylureido)benzyl, 2-Methyl-6-tert.-butoxycarbonylaminoacetamidobenzyl, 2-(3-Benzoylthioureido)-6-methylbenzyl, 2-Methyl-6-thioureidobenzyl, 2-Hydroxyacetamido-6-methylbenzyl, 2-Acetoxyacetamido-6-methylbenzyl, 2-Methyl-6-pyruvamidobenzyl, 2-Methoxalylamino-6-methylbenzyl, 2-Methyl-6-sulfamidobenzyl, 2-Lactamido-6-methylbenzyl, 2-Aminoacetamido-6-methylbenzyl.

4. Verfahren zur Herstellung von Imidazopyridinverbindungen der Formel

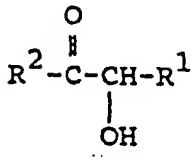


worin $R^1$ die Bedeutung $C_2$-$C_6$-Alkinyl hat, $R^2$ ist $C_1$-$C_6$-Alkyl und
$R^3$ ist Benzyl substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter $C_1$-$C_6$-Alkanoylamino, $C_1$-$C_6$-Alkansulfonylamino, $C_1$-$C_6$-Alkoxycarbonylamino, Isonicotinamido, Ureido, Ureido mit $C_1$-$C_6$-Alkyl, $C_1$-$C_6$-Alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, Phenyl($C_1$-$C_6$)-alkoxycarbonylamino, 3-Benzoylthioureido, Thioureido, $C_1$-$C_6$-Alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$-Alkanoylcarbonylamino, $C_1$-$C_6$-Alkoxycarbonylcarbonylamino, Sulfamido, $C_1$-$C_6$-Alkanoylamino mit Hydroxy, und Amino($C_1$-$C_6$)alkanoylamino,
oder eines Salzes davon, umfassend

(1) die Reaktion einer Verbindung der Formel

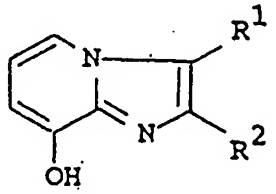


worin $R^3$ die oben genannte Bedeutung hat, oder eines Salzes davon,
mit einer Verbindung der Formel



worin $R^1$ und $R^2$ jeweils wie oben definiert sind, oder mit dessen reaktionsfähigem Derivat an der Hydroxygruppe, oder

(2) Reaktion einer Verbindung der Formel

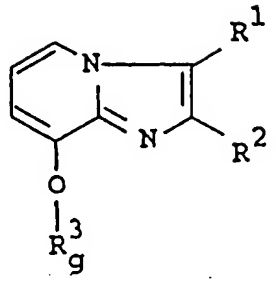


worin $R^1$ und $R^2$ jeweils wie oben definiert sind, oder eines Salzes davon,
mit einer Verbindung der Formel

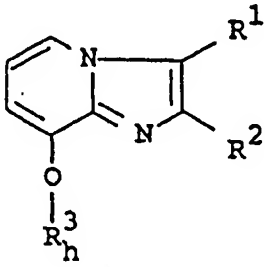
$R^3$ - OH

worin $R^3$ wie oben definiert ist, oder dessen reaktionsfähigem Derivat an der Hydroxygruppe, oder

(3) eine Reduktionsreaktion einer Verbindung der Formel

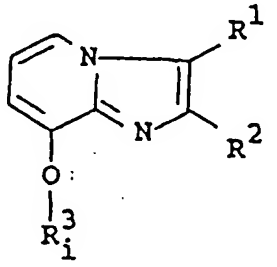


worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_g$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und $C_1$-$C_6$-Alkanoylcarbonylamino, oder eines Salzes davon, um zu einer Verbindung der Formel

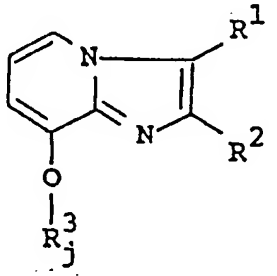


zu gelangen, worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_h$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und $\alpha$-Hydroxy($C_1$-$C_6$)alkanoylamino, oder einem Salz davon, oder

(4) eine Eliminierungsreaktion der Aminoschutzgruppe einer Verbindung der Formel



worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_i$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter $C_1$-$C_6$-Alkoxycarbonylamino(nieder)-alkanoylamino und 3-Benzoylthioureido, oder eines Salzes davon, um zu einer Verbindung der Formel



zu gelangen, worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3$j Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter Amino($C_1$-$C_6$)alkanoylamino und Thioureido, oder einem Salz davon.

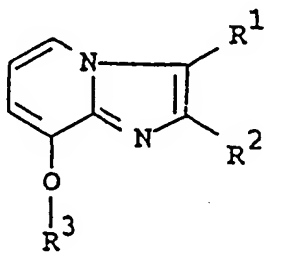
5. Pharmazeutische Zusammensetzung, umfassend als aktiven Bestandteil eine Verbindung nach Anspruch 1 oder ein pharmazeutisch annehmbares Salz davon im Gemisch mit pharmazeutisch annehmbaren Trägern.

6. Verbindung nach Anspruch 1 oder ein pharmazeutisch annehmbares Salz davon zur Verwendung als Medikament.

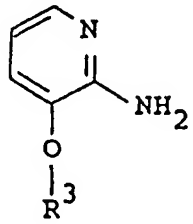
7. Verbindung nach Anspruch 1 oder ein pharmazeutisch annehmbares Salz davon zur Verwendung als ein Medikament zur Behandlung von Ulcus.

**Patentanspruch für folgenden Vertragsstaat : ES**

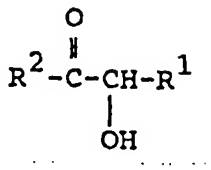
1. Verfahren zur Herstellung von Imidazopyridinverbindungen der Formel



worin $R^1$ die Bedeutung $C_2$-$C_6$-Alkinyl hat, $R^2$ ist $C_1$-$C_6$-Alkyl und
$R^3$ ist Benzyl substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter $C_1$-$C_6$-Alkanoylamino, $C_1$-$C_6$-Alkansulfonylamino, $C_1$-$C_6$-Alkoxycarbonylamino, Isonicotinamido, Ureido, Ureido mit $C_1$-$C_6$-Alkyl, $C_1$-$C_6$-Alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, Phenyl($C_1$-$C_6$)-alkoxycarbonylamino, 3-Benzoylthioureido, Thioureido, $C_1$-$C_6$-Alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$-Alkanoylcarbonylamino, $C_1$-$C_6$-Alkoxycarbonylcarbonylamino, Sulfamido, $C_1$-$C_6$-Alkanoylamino mit Hydroxy, und Amino($C_1$-$C_6$)alkanoylamino,
oder eines Salzes davon, umfassend
(1) die Reaktion einer Verbindung der Formel

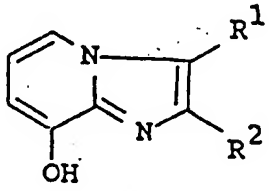


worin $R^3$ die oben genannte Bedeutung hat, oder eines Salzes davon,
mit einer Verbindung der Formel



worin $R^1$ und $R^2$ jeweils wie oben definiert sind, oder mit dessen reaktionsfähigem Derivat an der Hydroxygruppe, oder

(2) Reaktion einer Verbindung der Formel

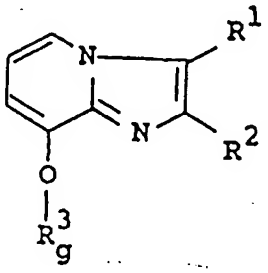


worin $R^1$ und $R^2$ jeweils wie oben definiert sind, oder eines Salzes davon,
mit einer Verbindung der Formel

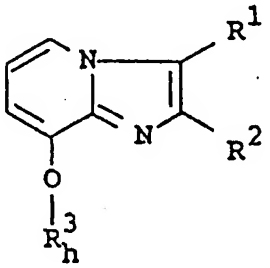
$R^3$ - OH

worin $R^3$ wie oben definiert ist, oder dessen reaktionsfähigem Derivat an der Hydroxygruppe, oder

(3) eine Reduktionsreaktion einer Verbindung der Formel

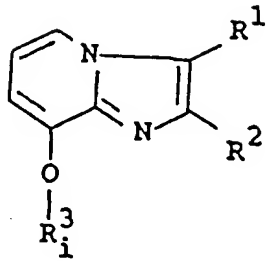


worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_g$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und $C_1$-$C_6$-Alkanoylcarbonylamino, oder eines Salzes davon, um zu einer Verbindung der Formel

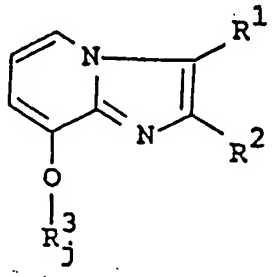


zu gelangen, worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_h$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und $\alpha$-Hydroxy($C_1$-$C_6$)alkanoylamino, oder einem Salz davon, oder

(4) eine Eliminierungsreaktion der Aminoschutzgruppe einer Verbindung der Formel



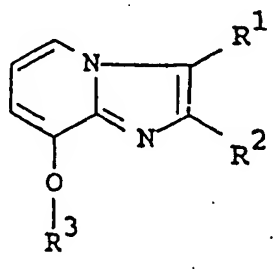
worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_i$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter $C_1$-$C_6$-Alkoxycarbonylamino(nieder)-alkanoylamino und 3-Benzoylthioureido, oder eines Salzes davon, um zu einer Verbindung der Formel



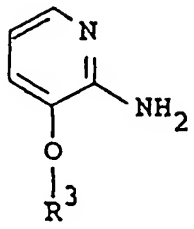
zu gelangen, worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_j$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter Amino($C_1$-$C_6$)alkanoylamino und Thioureido, oder einem Salz davon.

**Patentansprüche für folgenden Vertragsstaat : GR**

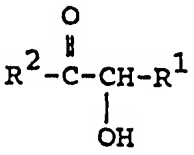
1. Verfahren zur Herstellung von Imidazopyridinverbindungen der Formel



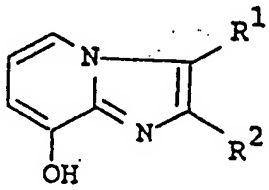
worin $R^1$ die Bedeutung $C_2$-$C_6$-Alkinyl hat, $R^2$ ist $C_1$-$C_6$-Alkyl und
$R^3$ ist Benzyl substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter $C_1$-$C_6$-Alkanoylamino, $C_1$-$C_6$-Alkansulfonylamino, $C_1$-$C_6$-Alkoxycarbonylamino, Isonicotinamido, Ureido, Ureido mit $C_1$-$C_6$-Alkyl, $C_1$-$C_6$-Alkoxycarbonylamino($C_1$-$C_6$)alkanoylamino, Phenyl($C_1$-$C_6$)-alkoxycarbonylamino, 3-Benzoylthioureido, Thioureido, $C_1$-$C_6$-Alkanoyloxy($C_1$-$C_6$)alkanoylamino, $C_1$-$C_6$-Alkanoylcarbonylamino, $C_1$-$C_6$-Alkoxycarbonylcarbonylamino, Sulfamido, $C_1$-$C_6$-Alkanoylamino mit Hydroxy, und Amino($C_1$-$C_6$)alkanoylamino,
oder eines Salzes davon, umfassend
(1) die Reaktion einer Verbindung der Formel



worin $R^3$ die oben genannte Bedeutung hat, oder eines Salzes davon,
mit einer Verbindung der Formel



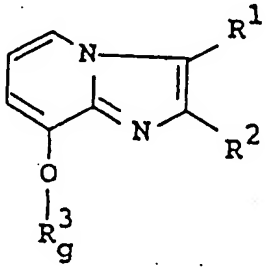
worin $R^1$ und $R^2$ jeweils wie oben definiert sind, oder mit dessen reaktionsfähigem Derivat an der Hydroxygruppe, oder
(2) Reaktion einer Verbindung der Formel



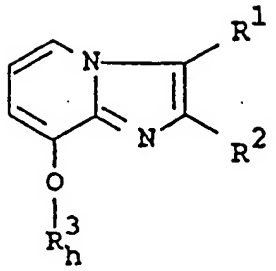
worin $R^1$ und $R^2$ jeweils wie oben definiert sind, oder eines Salzes davon,
mit einer Verbindung der Formel

$R^3$ - OH

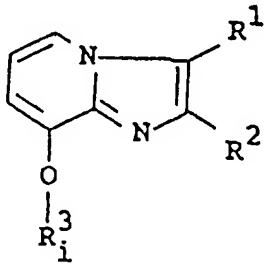
worin $R^3$ wie oben definiert ist, oder dessen reaktionsfähigem Derivat an der Hydroxygruppe, oder
(3) eine Reduktionsreaktion einer Verbindung der Formel



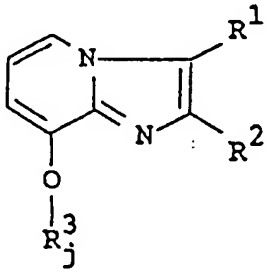
worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_g$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und $C_1$-$C_6$-Alkanoylcarbonylamino, oder eines Salzes davon, um zu einer Verbindung der Formel



zu gelangen, worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_h$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und α-Hydroxy($C_1$-$C_6$)alkanoylamino, oder einem Salz davon, oder
(4) eine Eliminierungsreaktion der Aminoschutzgruppe einer Verbindung der Formel



worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_i$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter $C_1$-$C_6$-Alkoxycarbonylamino(nieder)-alkanoylamino und 3-Benzoylthioureido, oder eines Salzes davon, um zu einer Verbindung der Formel



zu gelangen, worin $R^1$ und $R^2$ jeweils wie oben definiert sind und $R^3_j$ Benzyl ist, substituiert durch $C_1$-$C_6$-Alkyl und einen zusätzlichen Substituenten, ausgewählt unter Amino($C_1$-$C_6$)alkanoylamino und Thioureido, oder einem Salz davon.

2. Modifikation des Verfahrens nach Anspruch 1, gekennzeichnet dadurch, daß eine Verbindung, hergestellt nach einem Verfahren gemäß Anspruch 1, in eine pharmazeutisch annehmbare Form gebracht wird durch Vermischen oder Zubereiten der genannten Verbindung mit einem pharmazeutisch annehmbaren Verdünnungsmittel oder Träger.